NLGI Spokesman

Journal of National Lubricating Grease Institute

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Published monthly by
National Lubricating Grease Institute
Harry F. Bennetts, *Editor*
Joan Swarthout, *Assistant Editor*
4638 J. C. Nichols Parkway
Kansas City 12, Mo.

1 Year Subscription $2.50
1 Year Subscription (Foreign)..$3.25

NLGI Spokesman

Vol. XIX MAY, 1955 No. 2

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ABOUT THE COVER

Our cover illustrates *Modern Lubricants from a Modern Plant* starting on page 6 of this issue. The Pure Oil Company furnished us with a splendid group of pictures illustrating it. We showed them to artist Ronald Jones with the suggestion he use at least one as a guide for his drawing of the cover page.

Somehow he became intrigued with everything except manufacturing. Tank farms and transportation were his dish. Railroad trains and ships with containers being loaded in orderly fashion—that was it!

Anyhow, he hit on a subject that hasn't received too much consideration. The industry's primary considerations have centered on manufacture, sales and application. Maybe he's hit on a new slant here.

President's page

by H. L. HEMMINGWAY, President, N L G I

SPRING

To many people this time of year is significant because it means the beginning of summer, nature's most prolific season in the Northern hemisphere. To a few enthusiasts, however, the most significant event of this time of year is the great annual 500 mile race at Indianapolis.

Whether these enthusiasts are seeing the "500" for the first time, or are among the hardy ones who haven't missed a race in years, there's not a one that will fail to thrill at the sight of thirty-three fast cars coming off the pace lap and all trying to be in front going into the first turn!

There is still debate as to how much of a proving ground the "500" is for the automobile industry. The debate is probably academic anyway, because race car designers and mechanics are interested solely in developing cars that will stay in front and hold together *under the peculiar conditions of this particular race*. The result is that many of the best Indianapolis cars are so highly specialized that they are only driven in this one race each year.

From the lubrication standpoint, the specialized nature of this race presents the lubrication engineer with some odd problems. First, because racing conditions can be exactly duplicated only in the race itself, he must be able to guess with some accuracy what those conditions will be. And, his guess had better be close because as much as $85,000 in prize money and several lives may be at stake.

Another problem is what might be termed "technical superstition" among racing mechanics. One example is continued insistence on S.A.E. 50, or heavier, engine oils and the me-

chanics' endeavors to keep oil temperatures below, say, 170-180°F.—both probably carry-overs from many years ago when heavy castor oil, with its known instability at high temperature, was used exclusively in racing.

The lubrication engineer also has to guess at the possible effect of the fuel blend—which is usually a closely guarded secret—on his engine oil. Modern fuels are mostly methanol, but may also contain aviation gasoline, benzol, acetone, castor oil and other materials including various "nitro" compounds, such as nitromethane. The latter is a semi-explosive oxygen containing compound (hence sometimes called "the poor man's supercharger") which is so vigorous in its action that in 1954 some nineteen cars were found to have broken crankshafts after the 10 mile speed qualification trials.

Today's passenger car camshaft and valve lifter troubles are "old hat" to the experienced racing mechanic. For years, he has looked at the surface of his "cups" (equivalent of valve lifters or tappets) for evidence of the kind of lubrication his engine was getting.

Since hypoid gears generally are not used in race cars, some rear axle gears are lubricated with heavy mineral oils, while others function satisfactorily on normal multi-purpose gear oils.

The racing mechanic generally leans toward greases—for wheel bearings, universal joints and chassis parts—of heavy consistency, tacky in nature, and made with high viscosity mineral oils.

About the only parts of an Indianapolis race car that are likely to be of exactly the same quality as you can buy at your neighborhood service station are the oils and greases used for its lubrication. This is indeed a tribute to the quality of the products of our industry, for it has been said that 500 miles at Indianapolis may be the equivalent of 50,000 in the family car!

Air View

Mc

from

AIR VIEW The plant is located in the southeast corner of Texas on the deep water Neches River, which flows into the Gulf of Mexico. In this view the Neches River is in the foreground. The dock is almost 1200 feet long and is used for loading, not only the products of the lubricants operations, but the major part of the products of the entire refinery. This dock can handle at one time two large tankers and two barges. Both bulk and dry cargo are moved over it. The river at the edge of the dock is over 40 feet deep and can accommodate practically any size ship. The GCB Plant is right behind the dock, the lubricating oil tankage to the left of foreground, and behind it the lubricating oil manufacturing facilities. Behind are other units of Smiths Bluff Refinery.

MANUFACTURING BUILDING This two-story manufacturing and packaging building is over 250 feet long and 150 feet wide. The dock is approximately 50 feet wide at this point but is over 100 feet wide along the warehouse section of the GCB Plant.

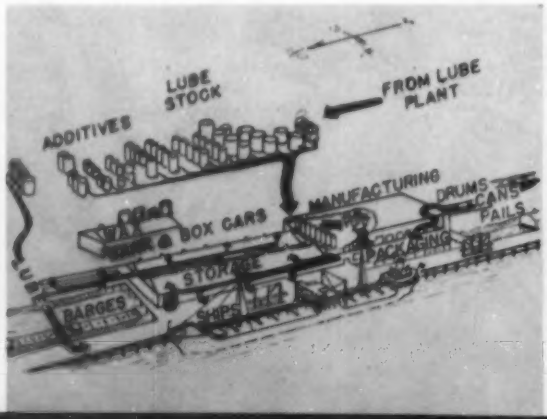
FLOW DIAGRAM The plant is designed for empty packages to enter one end and filled packages to leave the other. A large ratio of the empty packages flow directly from box car unloading points through the various filling operations to warehouse storage or loading area.

PACKAGE UNLOADING The empty package unloading ramp accommodates five cars of drums and/or cans. More than 10 cars can be handled easily in one 8-hour shift.

EMPTY PACKAGE ROOM The inside walls of the manufacturing building are tile, combining the advantages of easy cleaning and lightweight construction. A reservoir of some of the empty packages is maintained in the second floor storage room and moved to the first floor filling spots by conveyors.

Manufacturing Building

Flow Diagram



Package Unloading

dern Lubricants

a Modern Plant

By EDWIN L. SUTTON
The Pure Oil Company

WAREHOUSE WITH BOX CAR AND TANK CAR LOADING The first floor warehouse section is approximately 280 feet by 150 feet. On one side of the warehouse box car, truck and tank car loading is carried on while ship loading is handled on the dock side. Fourteen box cars can be loaded simultaneously. The seven-spot tank car rack can handle 14 cars in one 8-hour shift.

TANK FARM The lubricants tank farm area covers over three acres. In front are some of the lubricating oil manufacturing facilities. More than 60 tanks with capacities of from 75 to 10,000 barrels are available.

TANK PLATFORMS A network of platforms over these tanks permits easy access for gauging and other purposes. Each tank is blanketed with dry air. The large air supply lines can be seen entering each tank.

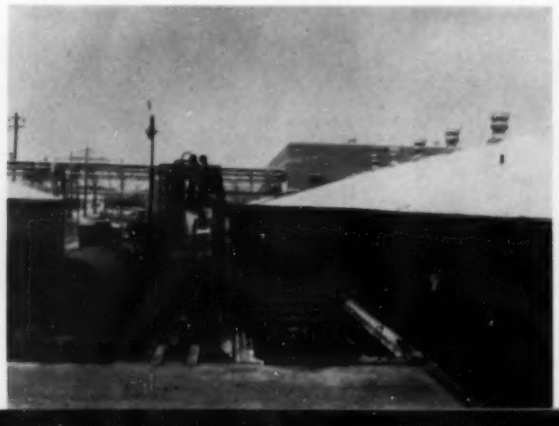
TANKS AND PUMPS The individual tanks which feed stocks to the GCB Plant are each equipped with an individual pump and line. This largely eliminates possibilities of contamination and simplifies all of the grease compounding and blending operations.

PIPE BRIDGE The lines run into the manufacturing building over a pipe bridge. This makes for a compact and easily accessible installation.

CONTROL BOARD The supply of oil to all operations is controlled by a switchboard which incorporates remote control of the pumps in the tank farm. One of the features of the control panel is to indicate control steps in color. A green light indicates that a particular pump is lined up for the remote control—and a red light indicates that a particular pump is in operation.

METERS Oils are metered through this complex arrangement of lines from the exterior tanks to the grease and compounding kettles. Each line has its own meter which is equipped with an automatic cut-off arrangement.

Warehouse with Box Car



Tank Farm

Tank Platforms

Pipe Bridge

WEIGH TANK Many of the liquid non-petroleum raw materials are stored in tanks in the previously illustrated lubricants tank farm. Other raw materials are stored in packages as received on the second floor of the manufacturing part of the plant. All liquid non-petroleum products are measured into this type of weigh-tank and after careful weighing to a predetermined quantity, are charged directly into the kettle. Solid non-petroleum raw materials are also weighed, in this way.

KETTLES AND BEAMS The manufacturing building was constructed with heavy overhead beams to which a hoist can be attached for lifting kettles for repair or replacement. These heavy beams were also placed in sections where expansion was anticipated, and at this time are being utilized for additional grease manufacturing equipment. In the center of this picture is the overhead autoclave which is used for manufacturing soap stocks, and some grease kettles are shown.

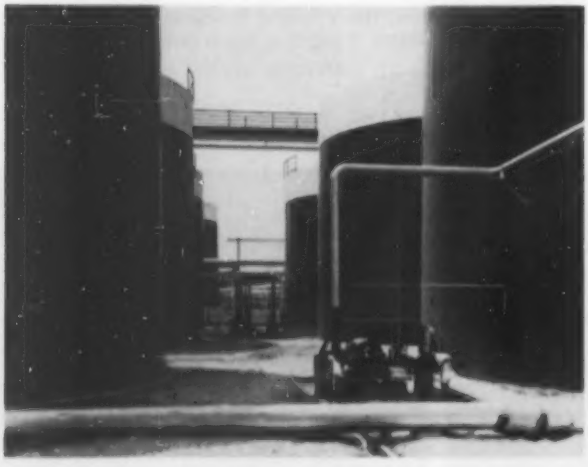
COMPOUNDING KETTLES In the background is the control board used by the grease makers and the compounders. The six kettles on the left are for compounding, sulfurizing, and similar operations. Behind these are six similar kettles, which do not appear in this photograph. The grease kettles previously described are in the right background. Of the five grease kettles shown the two on the extreme right are equipped with variable speed steam turbine drives. The new equipment referred to previously is being installed in the right foreground.

AUTOMATIC LUBRICATING OIL BLENDERS These automatic lubricating oil blenders are on the same floor as the grease manufacturing kettles. They are located over a grating which catches any spilled oil and runs it into a basement oil tank for recovery. The smaller unit is used for blending gear oils, and the remainder of the equipment is used for blending lubricating oils.

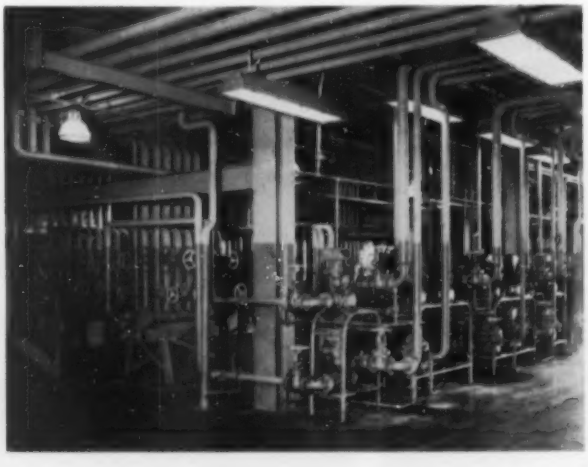
LABORATORY Right off the manufacturing area, on the second floor on the dock side of the building, is located a complete laboratory for control testing of the grease compounding and oil blending operations. While this is a separate unit to cover these operations only, it is part of the main refinery laboratory organization.

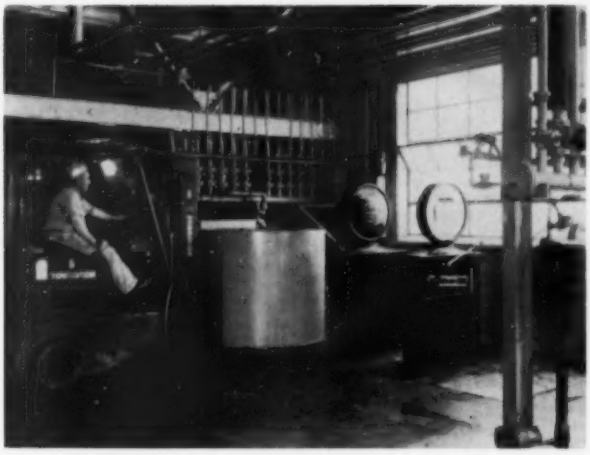
FLOOR DIAGRAM This illustrates schematically all of the filling operations which take place on the first floor of this building directly under the manufacturing facilities. As

Tanks and Pumps

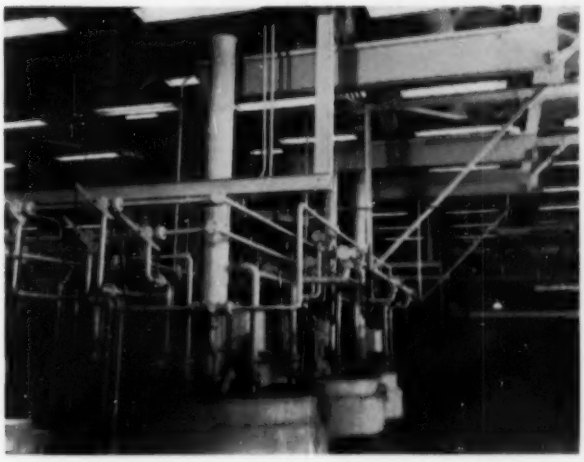


Meters





Weigh Tank

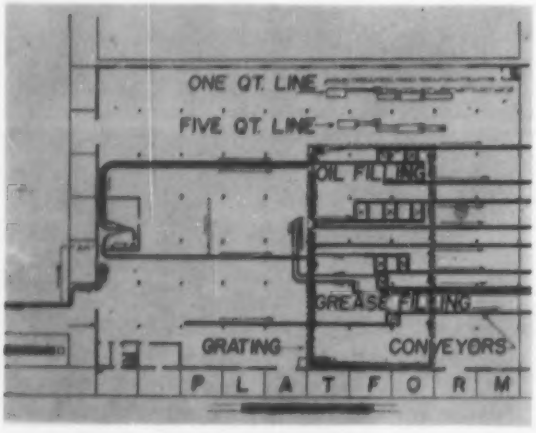


Kettles and Beams

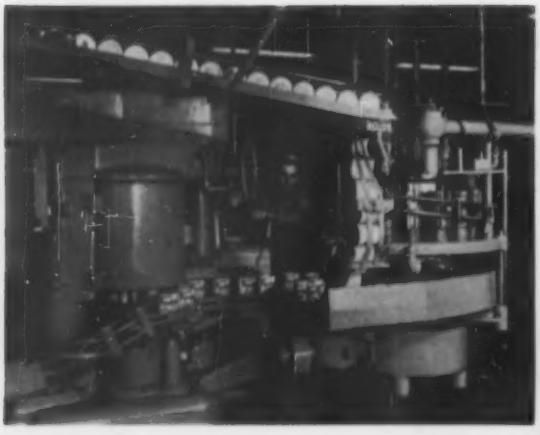
Compounding Kettles

Automatic Lubricating Oil Blenders

Floor Diagram



Canning Machine



Laboratory

indicated, the flow is from left to right. A system of power conveyors moves the empty packages through the filling area. The oil canning equipment receives empty cans either directly from box cars or from the second floor storage. Drums for filling come either directly from box cars or from first floor storage. All of the grease pails come from the second floor. This entire filling area is constructed over a grating under which is a large basement.

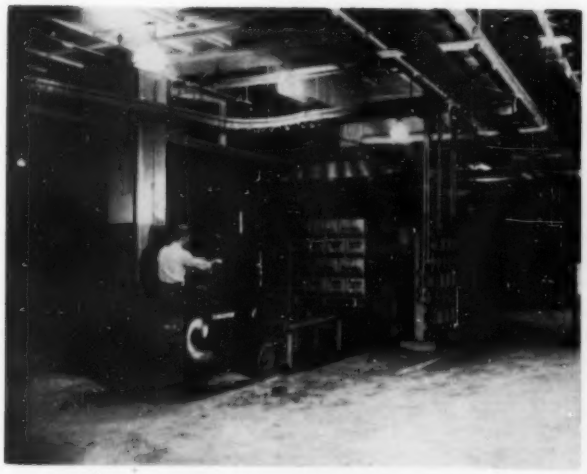
CANNING MACHINE One of the eye-catchers is this high speed one-quart canning machine.

PALLETIZER All finished packaged goods are handled on pallets. Where box car loading is involved the pallets are delivered to the door of the car where the packaged goods are removed and placed in the car. Where shipment of packaged goods is made by water, pallets are used all the way. The piece of equipment illustrated here palletizes automatically all of the canned oils. It is also equipped to palletize some of the grease packages. Large packages are placed on pallets at the end of the filling lines either by small hoists or by hand.

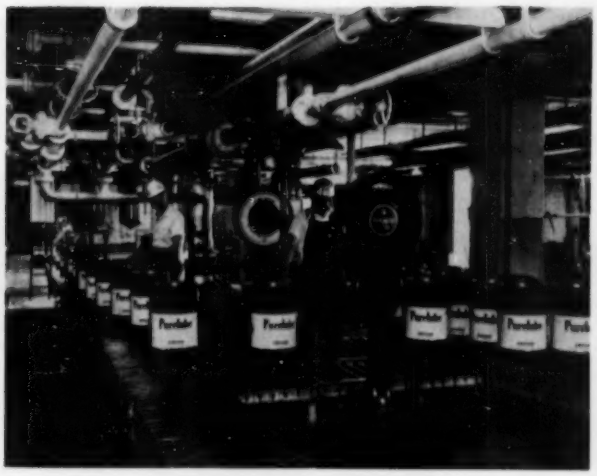
DRUM FILLING The drum filling rate is approximately 250 per hour. All filling of lubricating oils is by meters, which are equipped for automatic temperature compensation. Each filling line is equipped with a set of scales for spot-checking of drum weights.

DRUM FILLING (A) Pails from second floor come down a power belt conveyor which is controlled by a foot operated switch. The operator is filling pails on automatic trip weigh scales. After the lid is placed on the pail, it rolls down a gravity conveyor into an automatic crimping machine that crimps the lids and stamps the name and grade on the side of pails.

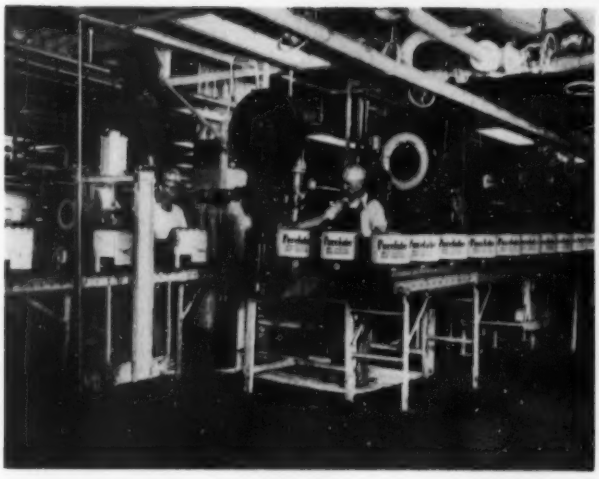
DRUM FILLING (B) One-hundred-twenty pound and four-hundred pound drums are filled on manually controlled scales. The 120-pound drums pass through an automatic crimping machine that crimps the lids and stamps the name and grade on the side of drums. Both crimping machines are on wheels and can be used in any of the grease or gear oil filling lines.



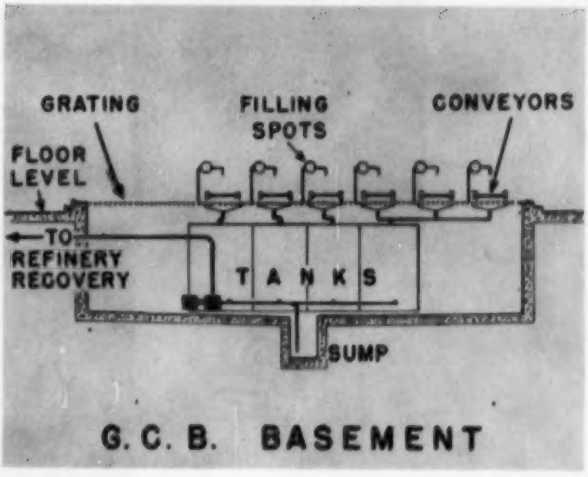
Palletizer



Drum Filling



Drum Filling (A)

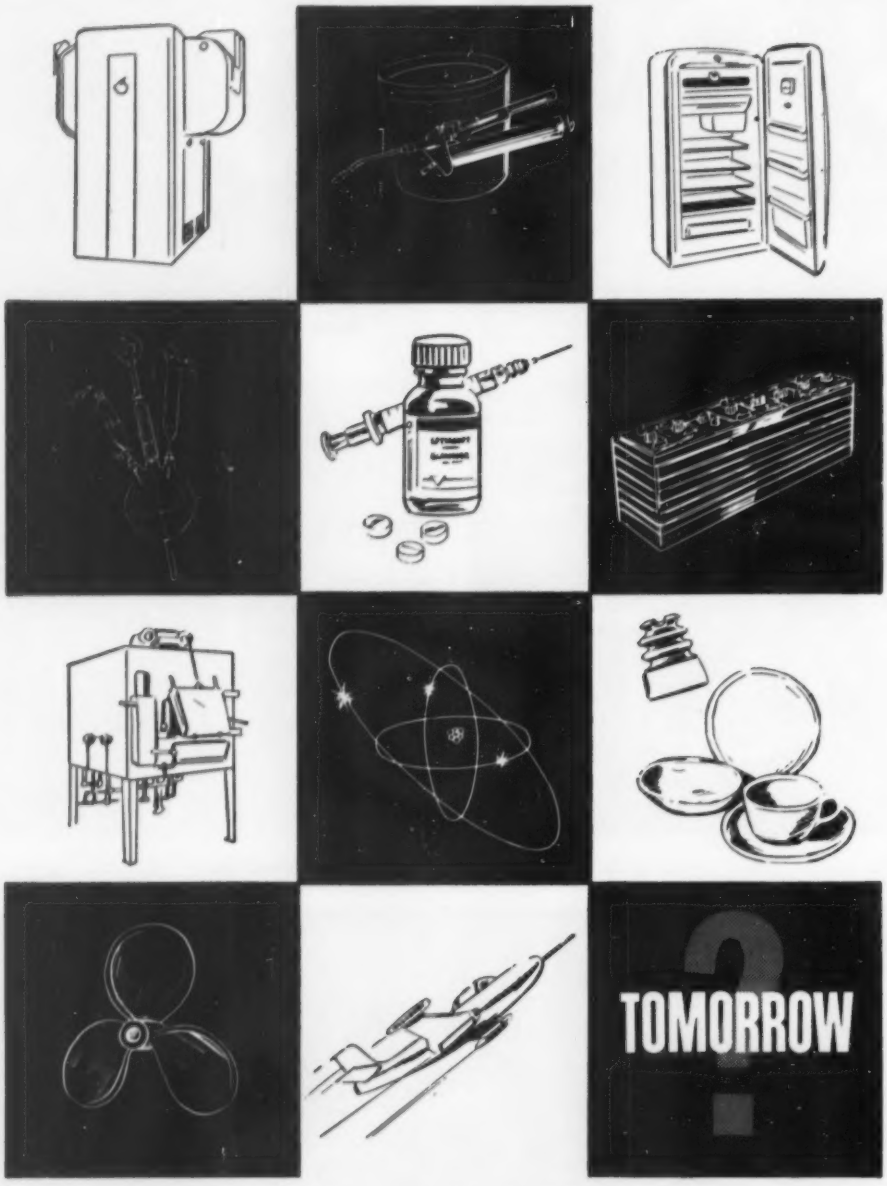


Basement Diagram

Drum Filling (B)

From air conditioning to welding fluxes . . .

LITHIUM CHEMICALS SERVE INDUSTRY!



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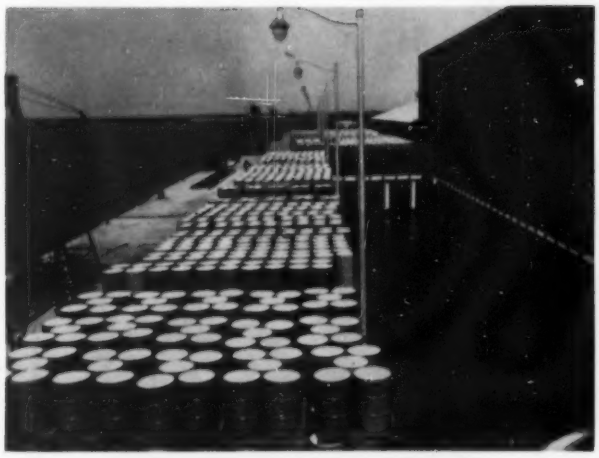
Drums on Deck



BASEMENT DIAGRAM This illustrates the basement under the grating covering the filling area. The method used for collecting drainage for recovery is illustrated.

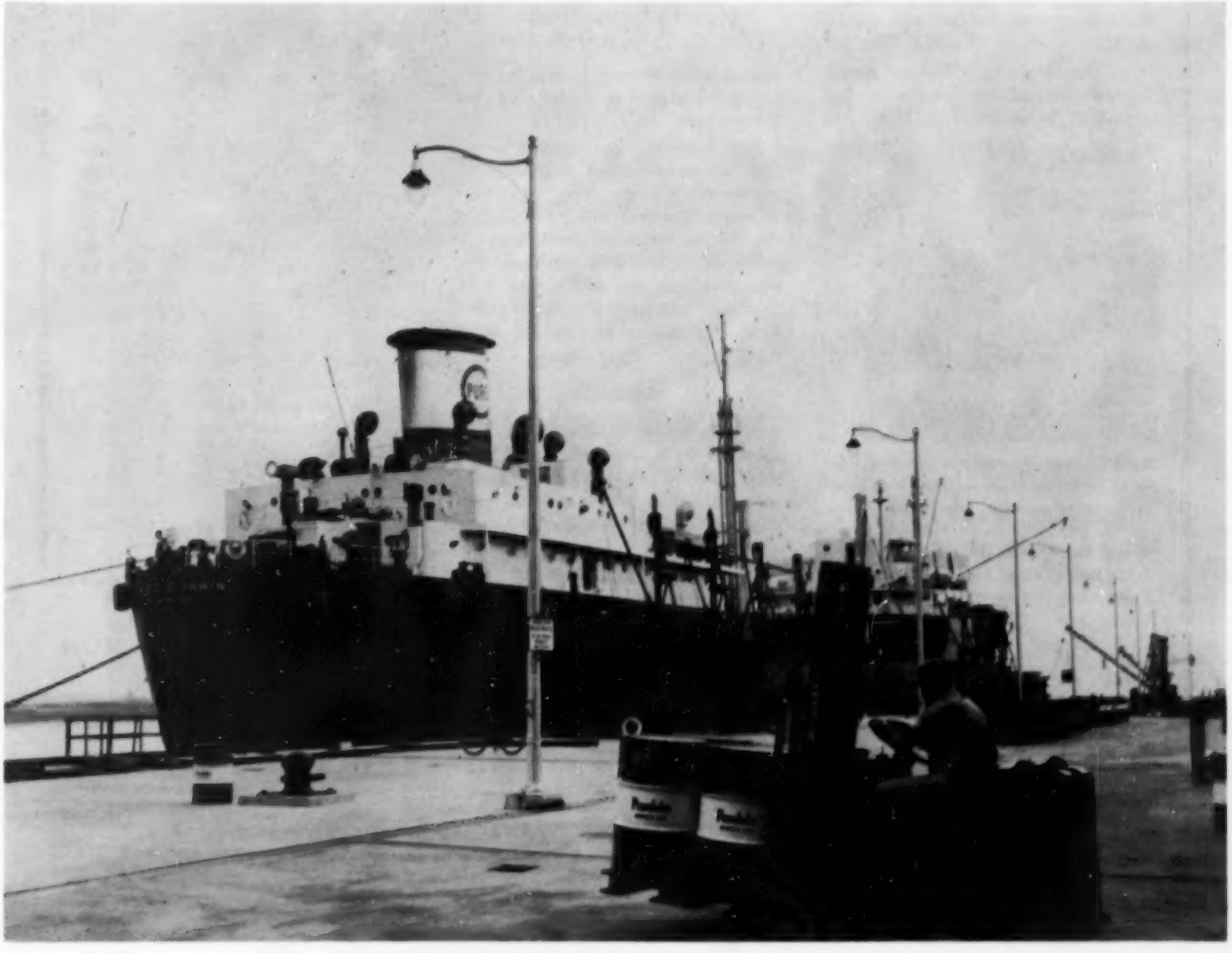
END OF FILLING LINES At the end of the drum filling lines, containers are placed on pallets by overhead hoists. To facilitate rapid handling the pallet is on a dolly which moves from the end of the filling line on tracks sunken in the floor. The movement to final destination is by fork-lift trucks.

DRUMS ON DECK A large ratio of the products from the GCB Plant leaves by barge and ship. Dry cargo is accumulated on the dock just prior to the arrival of the ship. The cargo is moved to the dock by use of fork-lift trucks. As many as 25,000 drums have been accumulated on this dock for shipment at one time.

SHIP LOADING The movement of the dry cargo to the dock is illustrated in the foreground, and the loading of the dry cargo onto the ship can be seen in the right background.

SUMMARY: This plant handles more than 1,000 items efficiently and economically, and the equipment permits the manufacture of quantities of from 200 pounds up to ten tons at one time. You may be certain that The Pure Oil Company is proud of this installation, believed to be one of the most complete in the petroleum industry.

Ship Loading



PROGRESS THRU RESEARCH . . . at GENERAL MILLS

Fatty Acids Reduce Off-Grade Greases, Help You Maintain Constant Grease Consistency ☆☆☆☆☆ Up Grease Yields

One Answer to The Problem of off-grade grease batches lies in the purity and uniformity of the fats you use. General Mills offers you a variety of pure, constantly-uniform fatty acids designed especially for making greases of consistent quality.

Now you can suit your fat compositions more closely to your needs—even to special greases tailored for polar-zone army equipment, high-speed engines, stratosphere airplane, and other new uses. That's because General Mills takes extra precautions with its fatty acids. The myristic and palmitic acid content is controlled carefully with improved separating and distilling methods. Careful selection of tallows insures a rigid control on linoleic and stearic acids.

In the long run, off-grade grease batches caused by impure or improperly balanced fats cost you much more than the cost of modern fatty acids. That's why many manufacturers . . . formerly satisfied with whole fats . . . are ordering General Mills fatty acids.

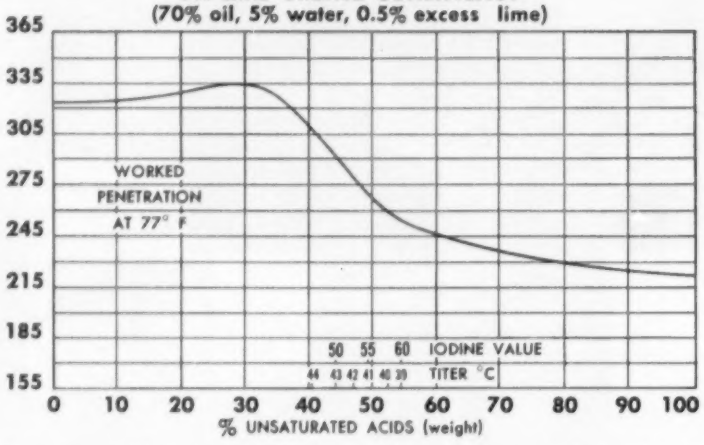
Reliable grade and stability of grease are essential for military equipment such as the tank shown on Polar maneuvers, above.

☆☆☆☆☆

Help yourself avoid a typical grease production problem! Grease consistency can drop drastically from just a slight variation in the saturated acid content of your fats. Take a look at the graph above.

The scale shows the abrupt drop in grease consistency caused by only a slight change in saturated acid content of fats.

EFFECT OF VARYING SATURATED ACID CONTENT ON LIME GREASE CONSISTENCY
(70% oil, 5% water, 0.5% excess lime)



See how the penetration drops fast as unsaturated acid content passes about 35 per cent? Well, here is where General Mills fatty acids can do you the most good. You can solve your problem of finding a source of supply which will have uniform composition, time after time, by ordering General Mills fatty acids.

☆☆☆☆☆

You Can Boost Grease Yields with General Mills fatty acids, too. They have about 5 per cent more reactive materials than whole fats, so they saponify almost completely, and often boost grease yields 10 to 25 per cent higher.

In addition, you get faster "kettle turnover" for fatty acids saponify almost instantly. Naturally, this speeds production and helps cut your operating expenses.

General Mills has also brought to grease making the modern way to cut handling costs. Saturated fatty acids are now available in pallet shipments at no extra charge; 50 pound multiwall paper bags glued to disposable corrugated paper pallets—40 to 60 bags to the pallet. You simply handle the bags with a lift truck.

For more information about General Mills fatty acids for grease making, just mail the coupon below.

SEND THIS COUPON:

PROGRESS THRU RESEARCH

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General Mills CHEMICAL DIVISION
KANKAKEE, ILLINOIS

Please send me technical information on General Mills fatty acids for grease making.

TYPES OF GREASE: _____

Name _____

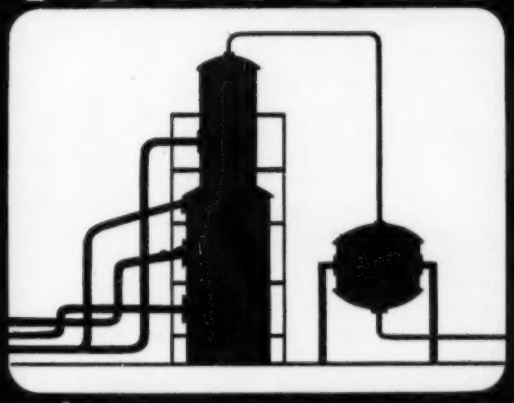
Firm _____

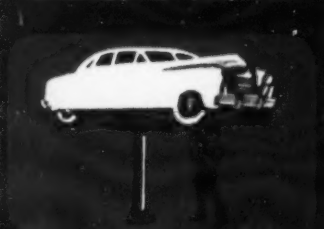
Address _____

City _____ State _____

Century Products

for the lubricating grease industry





Have you investigated the outstanding qualities of Cenwax A and Cenwax G in the compounding of lithium greases?

Cenwax A (12-Hydroxystearic Acid) produces grease with exceptional shear stability, good water resistance, and stable greases over wide temperature ranges. Compounding greases at low temperatures as well as quick cooling are desirable features.

Cenwax G (Hydrogenated Castor Oil Glyceride) An excellent glyceride of 12-Hydroxystearic acid where the use of a glyceride is preferred because of processing conditions.

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Patents and Developments

Carbon Black Lubricating Greases

A series of recent patents issued to Standard Oil Development Company has indicated that considerable development work is in progress on the use of carbon black as a thickening agent for lubricating greases. In the past few years there has been an increasing use of such thickeners in certain types of industrial lubricants. For certain high temperature operations, particularly in steel rolling mills and comparable heavy industrial equipment, conventional soap thickeners lack adequate heat stability and tend to break down at 400° F. or higher, whereas the lubricating oils themselves, which are used as the base, are quite heat stable at 600° F. and even above, if properly selected.

With the introduction of carbon black, especially acetylene black, as a thickener for steel mill greases, some of these objections have been overcome, but new problems are claimed to have arisen. Clogging has been encountered in lines of central lubricating systems due to separation of thickener and some difficulty has been encountered in securing adequate resistance to separation with these greases. In U. S. Patent 2,653,131, previously discussed here, certain soaps (such as aluminum stearate) were proposed as additives to improve resistance to separation, since it appears that the soap holds the oil more firmly than the carbon black does.

In U. S. Patent 2,696,469, performance of such carbon black-soap thickened greases is claimed to be improved at both high temperature and high pressure operation, since mineral oils are somewhat deficient in lubricating properties under extreme pressure conditions. The invention is claimed to reside in the discovery of superior extreme pressure properties which can be imparted to carbon black greases by a proper choice of ingredients without impairing other essential properties. The improvement resides in a combination of two modifications of the usual carbon black greases. First, the black should have a pH of 2-5, which is considerably below that of most blacks. It should have an average particle size (average diameter) of below about 20 microns. This means that a commercial black should be chosen which holds over 5% volatile matter. With most blacks, this absorbed material is alkaline, with pH of 8-10. Acetylene black usually has a pH of about 8. However, a commercial channel black known as "Superba" has a pH of about 3.5, and is suitable for the purposes of the patent.

Another aspect lies in the discovery that a combination of extreme pressure additives, including derivatives of fats or fatty acids in combination with phosphate esters, is particularly effective in such compositions. Thus, a combination of sulfurized sperm oil, fatty acid, and phos-

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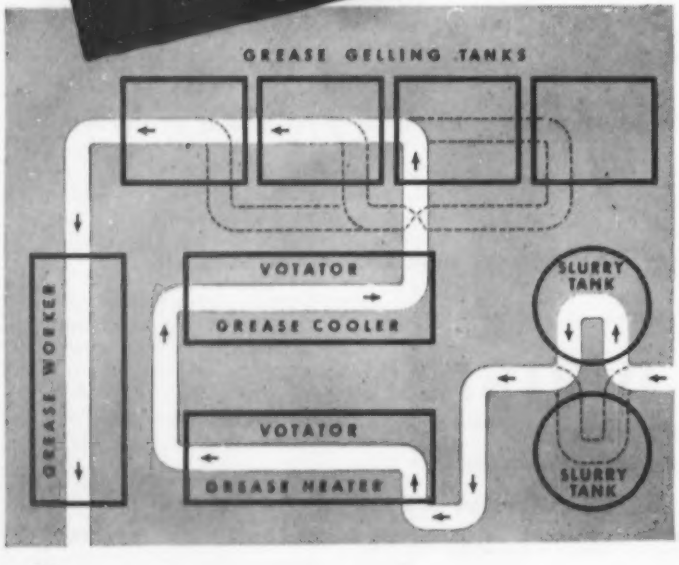

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phate ester is more effective than a combination which includes lead oleate instead of the phosphate ester. In usual lubricants, lead oleate would be expected to be superior.

A grease containing low pH carbon black with sulfurized fatty oil, fatty acid and phosphate ester is claimed to show outstanding load bearing properties, and is claimed to show an entirely satisfactory pass at a 38 lb. load on the Timken Machine. The aluminum soap preferably is aluminum stearate in the concentration range of 1.5-3.5%. Carbon black content preferably is at 5-15%, and the extreme pressure additive is usually about 10%. A sulfurized sperm oil containing 12% sulfur is also preferred as the main E.P. ingredient in the amount of 5-10% of the total composition. The oleic or other fatty acids should be in the proportion of 1-5%, while the tricresyl phosphate ester is used in an amount of 0.5-2%.

In U. S. Patent 2,696,470, it is mentioned that carbon black greases already have been the subject of U. S. Patents 2,453,153, 2,467,145-8, and 2,487,260-1. This patent points out another disadvantage of such greases, namely, that they possess an extreme tendency to stain hands and clothes of workmen who come in contact with them, and some such greases are difficult to remove with soap and water. This detrimental property is claimed to have been overcome by coating the carbon black in the oil with a waterproof soap, such as a lithium soap of long chain fatty acids. The coating is conveniently accomplished by mixing the carbon black into a soap-oil mixture, after which the mixture is heated to about the melting point of the soap, and then allowed to cool, followed by stirring to the desired consistency or penetration number. By this method, the soap is essentially subdivided from the macro state to the molecular state.

This technique is claimed to be applicable with other waterproof soaps and can be employed on inorganic thickeners such as silica gel. Acetylene black content of the grease should be at least 4.5% and preferably 6% or more in the case of extreme pressure lubricants. The latter may contain lead naphthenate, sulfurized sperm oil, and commercial chlorinated paraffin.

In another recent patent (U. S. 2,696,471), the invention resides in substituting an acid treated mineral base lubricating oil for the usual black oil employed in carbon-black-soap thickened greases. Further improvement is claimed to be obtained by using a small percentage of saturated fatty acid of the C_{14}-C_{20} range in combination with the soap and carbon black.

It is claimed to have been discovered that a very substantial increase in consistency is obtained by combining an acid treated oil with the carbon black and aluminum soap thickeners. The composition preferably contains, besides the acid treated lubricating oil, 1-5% of aluminum soap of predominantly saturated fatty acids of the C_{12} to C_{22} range, the preferred soap being aluminum stearate in proportions of 2-3%. Carbon black content preferably is about 10-12%, and it may be either acetylene or channel black, although for optimum E.P. properties, channel black is more desired. The saturated fatty acid preferably is about 2%, and the sulfurized fatty oil forming the principal E.P. agent preferably is used in amount of 8-10%. About 1% of tricresyl phosphate also is added.

Figure 1 is a graphical chart outlining the results of high temperature pressure viscometer tests of various

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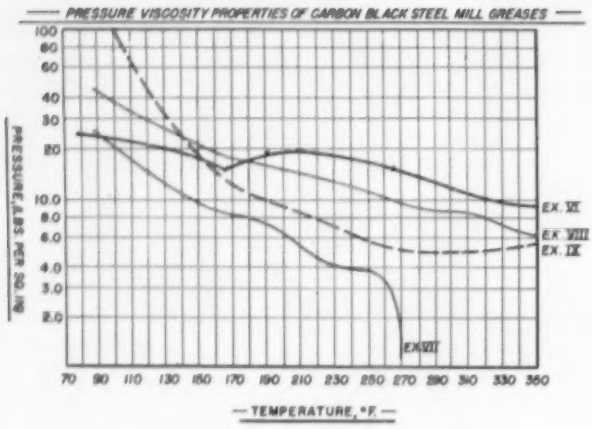
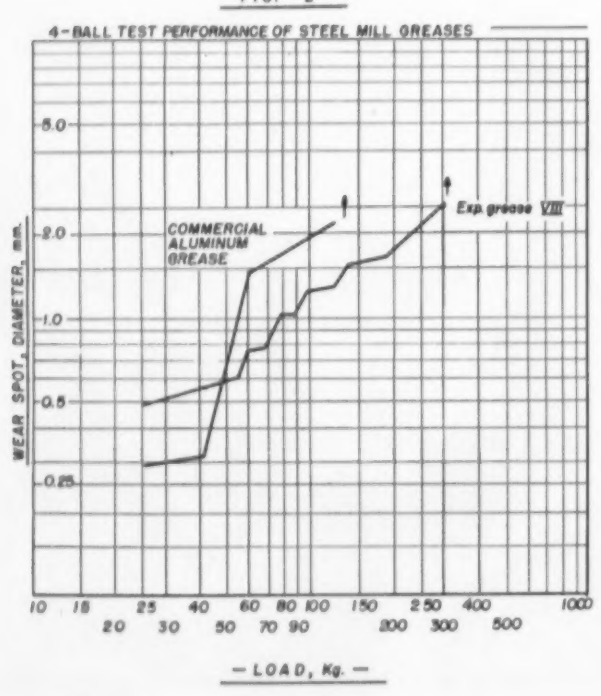
FIG. – 1



grease blends. It is seen that the patented grease (Ex. VIII), containing 50-50 channel and acetylene black is equivalent in bodying properties to straight acetylene black grease (Ex. VI) and far superior to straight channel grease (Ex. VII). A commercial grease not made according to the patent is identified as Ex. IX. Four ball machine test results depicted in Figure 2 on a commercial grease and one made according to the patent (Ex. VIII) show that the latter compares favorably. Inasmuch as the cost of soap and carbon thickeners for heavy industrial greases is a very substantial item in their production, substantial savings are claimed to result from the substitution of acid treated oil for conventional black oil because of improved yields reported in the patent.

FIG. – 2



NEWS ITEMS

U. S. 2,696,276 (Loda E. Burnett)–Grease fitting for pressure guns.

Standard Oil Co. (Indiana) advertised its white Stanolith grease as the perfect grease for food and beverage plants (Chem. Engrg. 12/54 p. 52).

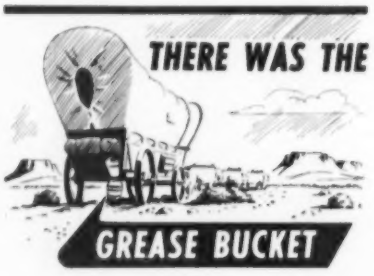
Alemite Co., Chicago 14, advertised its new Super-H grease pump as giving 6,000-7,000 lb. pressure at the control valve instantly (Nat. Petr. News 11/54, p. 174-5).

Lockrey Co., Southampton, N. Y., added sub-micronized molybdenum disulfide to silicone to get Mo-Silicone vacuum grease, claiming it acts as a tight seal against high and low pressures and as a lubricant (Tool Engr. 12/54 p. 173).

Newer trends in grease-making and tips on equipment –Yarham (Oil and Gas J. 12/6/54 p. 119).

General Electric claims that its 81482 lubricating grease, "the first silicone lubricant for jet aviation and industry which can operate at 400° F. or higher," will be marketed this year (N. Y. Jour. Commerce 12/17/54 p. 10).

According to one article, if the 1955 Lincoln-Mercury Multi-Luber push-button auto lubrication develops into a trend, oil marketers in 10 years may see the decline and even disappearance of the gas station lube bay. The canned lubricant is 95% oil and 5% soap (Nat. Petr. News 12/54 p. 46).



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Technical Committee

Chairman T. G. Roehner, Director of the Technical Service Department, Socony-Vacuum Laboratories

1. Organization of a Steering Committee within the Technical Committee set-up has been completed. The initial membership of the Committee is comprised of the chairmen of all subcommittees of the Technical Committee, active vice chairmen of the Technical Committee, and vice chairmen of the Technical Committee who were in office the previous term. The chairman and vice chairmen of the Technical Committee are the chairman and vice chairmen of the Steering Committee. Its scope of activities includes the following:

A. Provide advice and guidance for the programs of the subcommittees.

B. Formulate the agenda for the annual meeting of the Technical Committee.

C. Initiate new activities.

D. Coordinate Technical Committee activities with the objectives of NLGI, particularly from a long-range viewpoint.

2. The Program Committee has requested the Technical Committee to organize and conduct a panel discussion on the subject of lubricating greases for modern farm machinery, and a symposium on flow properties of lubricating greases. A half day session of the meeting will be assigned to each one of those subjects. According to present plans they will parallel the panel discussion on "Field Evaluation of Lubricating Greases in Fleets and Cars," and the symposium on "Studies of Grease Structure" held at the annual meeting in San Francisco. In other words, the former will provide a forum for presentation of viewpoints of manufacturers of farm machinery, dispensing equipment manufacturers, as well as lubricating grease manufacturers and marketers, while the latter will deal primarily with technical phases of a fundamental property of lubricating greases. Organization of committees to handle these two assignments is in progress.

If you have any suggestions, it would be appreciated if you would send them to L. C. Brunstrum, E. W. Nelson, or T. G. Roehner.

Dry Hole a Success

The world's deepest well has been abandoned at 21,482 feet as a dry hole, after 1,175 days of drilling and testing and the investment of more than two million dollars. This may be called an example of sinking to low depths to reach new heights, as it proved that modern rotary equipment in the hands of skilled crews is capable of drilling four miles into the earth to bring mankind more oil in the future.

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Actual Free Fatty Acid Content	90%
Saponification No.	120-130
Free Inorganic Acid	0.2% max.
Iodine Value	20-40
Apparent Solidification Point (titre)	Approx. 44° C.
Softening Point	45-48° C.
% Sulfur	No corrosive sulfur

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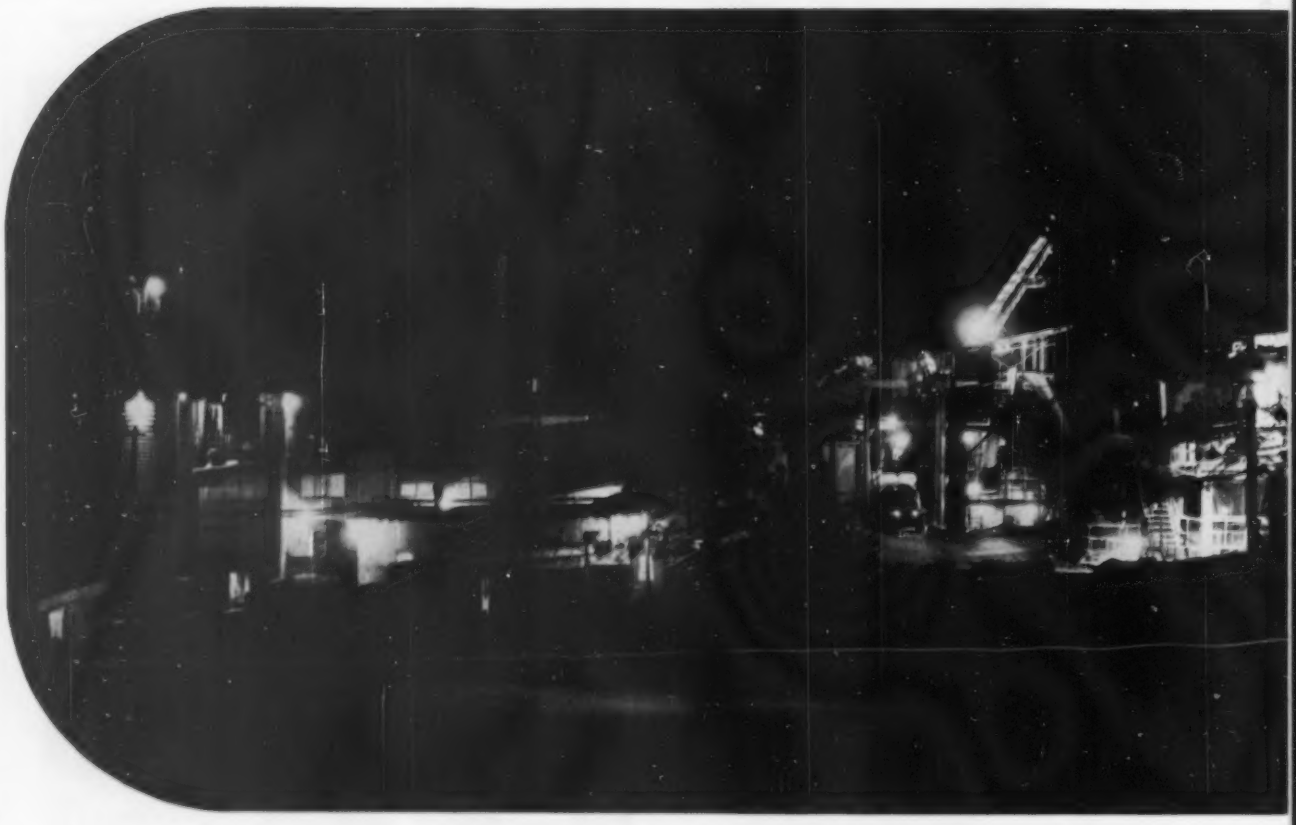
A NEW ERA IN



Kings Mountain, N. C. (left), where Foote is mining and processing large deposits of spodumene which are shipped to Sunbright, Va. (right), the world's largest lithium chemical plant.

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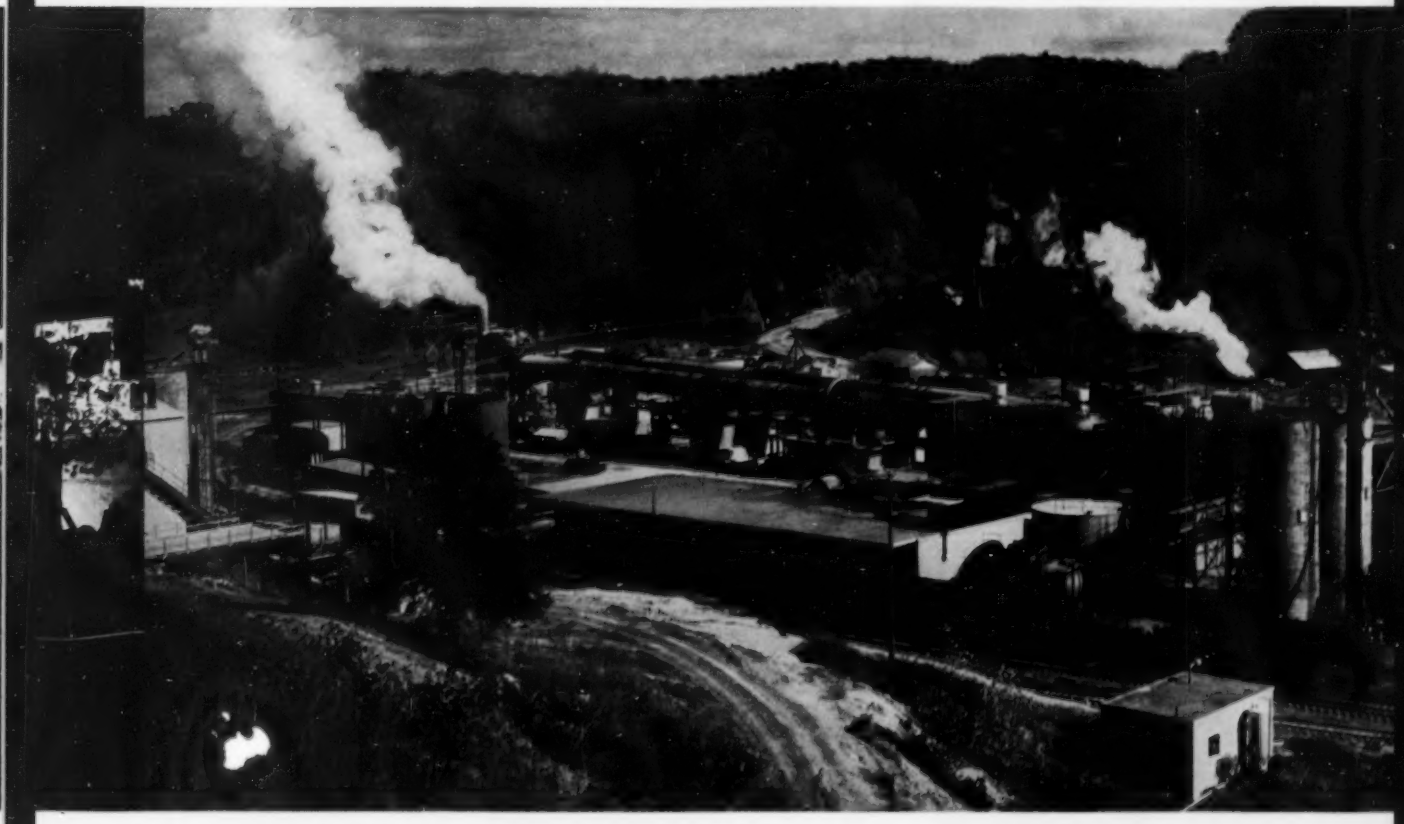

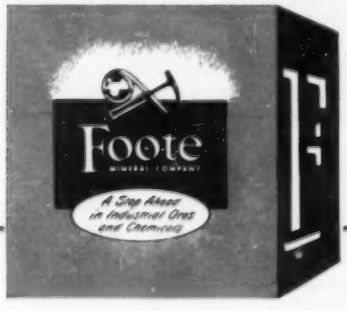

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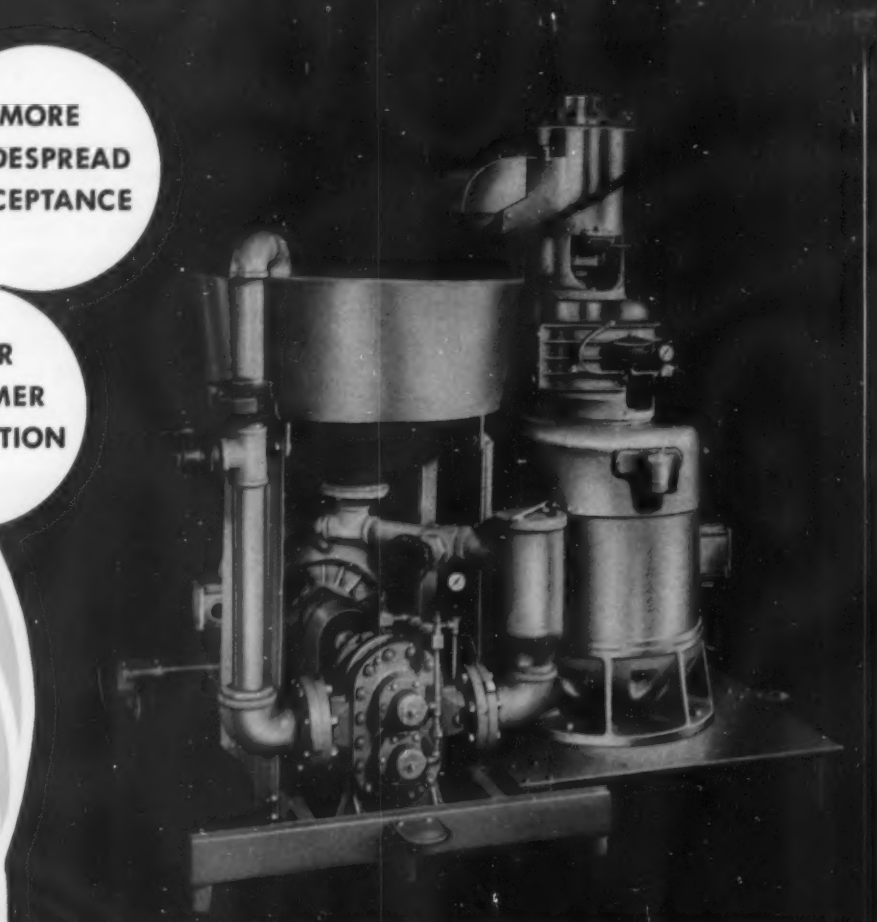

Model B-2005 Morehouse Mill and Model "E" Deaerator. Each unit independent, portable. 7' 10½" high. 3' 4" x 5' outside dimensions. Capacity 25,000 lbs.* of high quality grease per hour. Mill driven by 40 H.P. explosion proof or drip-proof open type motor, available with phase, voltage, and frequency characteristics to meet customer's requirements. Other mill models with capacities of 1000 lbs.* per hour, and 8000 lbs.* per hour, also available.

** All production figures at 60 cycle operation.*

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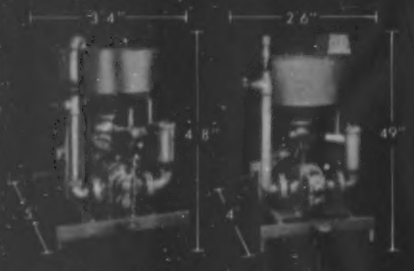

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The Morehouse Deaerator, used by itself or with the Morehouse Mill, efficiently and effectively removes air entrainment from your product. Quality, stability and appearance of the product are improved. Net increases of 20 to 40 lbs. of grease per drum are possible. Savings in storage facilities, drums, and shipping costs are appreciable.

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PEOPLE in the Industry

ROBERT E. CREAN

FRANK A. HITER

THOMAS A. PRINTON

Lincoln Appoints New Manager

The internationally known manufacturer of lubricant application equipment, Lincoln Engineering Company, St. Louis, Missouri, has announced the appointment of Robert E. Crean as Manager of the company's Philadelphia Industrial Branch Sales Office, succeeding M. C. Hazenfield who has retired.

Mr. Crean brings to his new position a rich and varied experience from within the company, having progressed through the Engineering, Production, Planning and Original Equipment Sales Departments to Staff Industrial Sales Promotion, and Industrial Territory Management.

Funeral Services For F. A. Hiter

Funeral services were held April 12 at the Fourth Presbyterian church in Chicago for Frank A. Hiter, 63, senior vice president of Stewart-Warner Corporation since 1944 and head of the company's Alemite and Instrument Division. He died April 9 of cerebral hemorrhage at Wesley Memorial hospital.

A native of Owensboro, Ky., Mr. Hiter would have completed 35 years with the Alemite lubrication products division of Stewart-Warner next December. He started as assistant sales manager of the Alemite Corporation in 1920, four years before that company was purchased by Stewart-Warner. He became a vice president of Stewart-Warner in 1933 and a director in 1942.

He is survived by Mrs. Hiter, the former Florence Dillon, whom he married in 1939, and his mother, Mrs. A. F. Hiter, of St. Petersburg, Fla.

Mr. Hiter was a director of United Wallpaper, Inc., and of the Williamson Candy Company. He was a trustee of the Fourth Presbyterian church of Chicago and a member of the Glen View Country Club and the Tavern and Racquet clubs of Chicago. He had been a director of the Radio Manufacturers' Association and of the Chicago Boys Clubs, and headed the automotive sections of several annual Red Cross and Community Fund drives in Chicago.

Mr. Hiter was nationally known in the automotive industry, which he entered as an automobile distributor in Louisville, Ky., two years after his graduation from Tennessee Military Institute in 1910. He was in the automobile accessory business following his return from service in France as a first sergeant in the 312th Field Artillery, 79th Division, A.E.F., in World War I.

Concerned primarily with sales throughout the long career in the lubrication field which began when he joined Alemite in 1920, he has been credited with being largely responsible for the adoption of pressure lubrication systems by car and truck manufacturers in the early 20's. In addition to his original equipment pioneering, he built up a nation-wide distributing organization for his company's lubrication products which markets lubrication pumps and guns used by service stations, car dealers, fleet operators and other automotive service establishments. He also headed the development and marketing of lubrication systems and products for the machine tool, farm implement, marine, aviation and other industries.

Nopco's President Sees Harder Selling

The whole American chemical industry faces the challenge of putting a lot of idle plant capacity to work, Thomas A. Printon, President and Chairman of the Board of Nopco Chemical Company, Harrison, N. J., declared at the meeting held on March 1st.

"We are all in the same boat," he told the sales force of the company's Agricultural Department gathered

from all over the country for an annual sales meeting in Newark, N. J. The Agricultural Department produces vitamin supplements and antibiotics for animal and poultry feeds.

Unused plant capacity, built up throughout the chemical industry in expectation of business which hasn't developed—"but which could yet"—is a continuing financial burden, said Printon.

The solution, he stated, lay in stepping up the sales effort.

Printon recalled that 1954, when Nopco earned $2.66 a share compared with $1.88 in 1953, was one of the best years in the history of the company. One reason it was so good, he explained, was the removal of the excess profits tax, added to Nopco's 5% increase in sales during 1954.

"It will really be a big and tough job to show the same percentage of improvement this year," said Printon.

He declared the prosperity of the company lay in the hands of the salesmen and that any move of the company was important to the degree that it furthered their sales effectiveness.

Southwest Grease Elects A. L. Gilbert

Mr. A. L. Gilbert was elected by the Board of Directors as Secretary of Southwest Grease & Oil Co., Inc., on April 8, 1955.

He previously spent 13 years with the Cities Service Oil Company, and later was Secretary of the W. W. Virtue Co., Inc., until that company was succeeded by the J. M. McDonald Company.

Mr. Gilbert came to Southwest Grease on August 1, 1954, and his present position is Office Manager.

U. S. Steel Chairman Fairless Warns Industry

U. S. Steel chairman Benjamin F. Fairless tonight warned that the United States cannot spend itself into prosperity, declaring that the basic law of economics can be reduced to nine simple words: "There is no such thing as a free lunch."

In a speech before the Cincinnati Commercial Club, Mr. Fairless declared that "ever since the Garden of Eden there have probably been times when all of us wished we might live in a society that would provide us with full un-employment at a guaranteed annual wage." The true "progressive," as opposed to the Utopia-seeker, "will never try to dupe any

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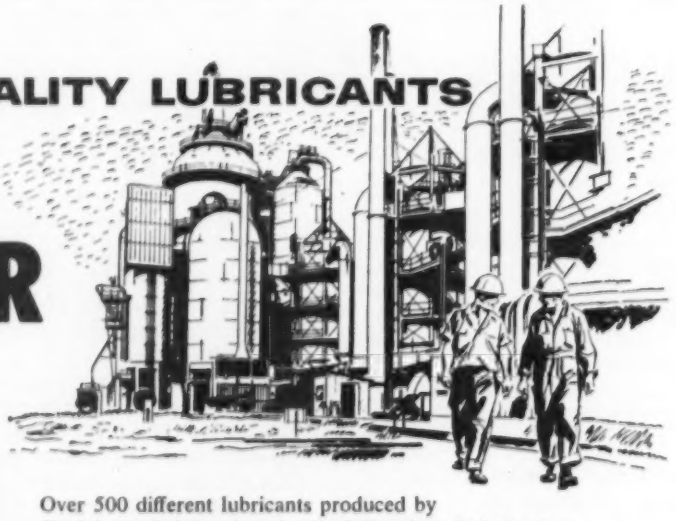

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Over 500 different lubricants produced by Sinclair are helping the wheels of American Industry turn faster – easier and more efficiently. Each one of these top-quality lubricants is *specifically* designed for a *specific* need . . . each is a product that can be used with confidence.

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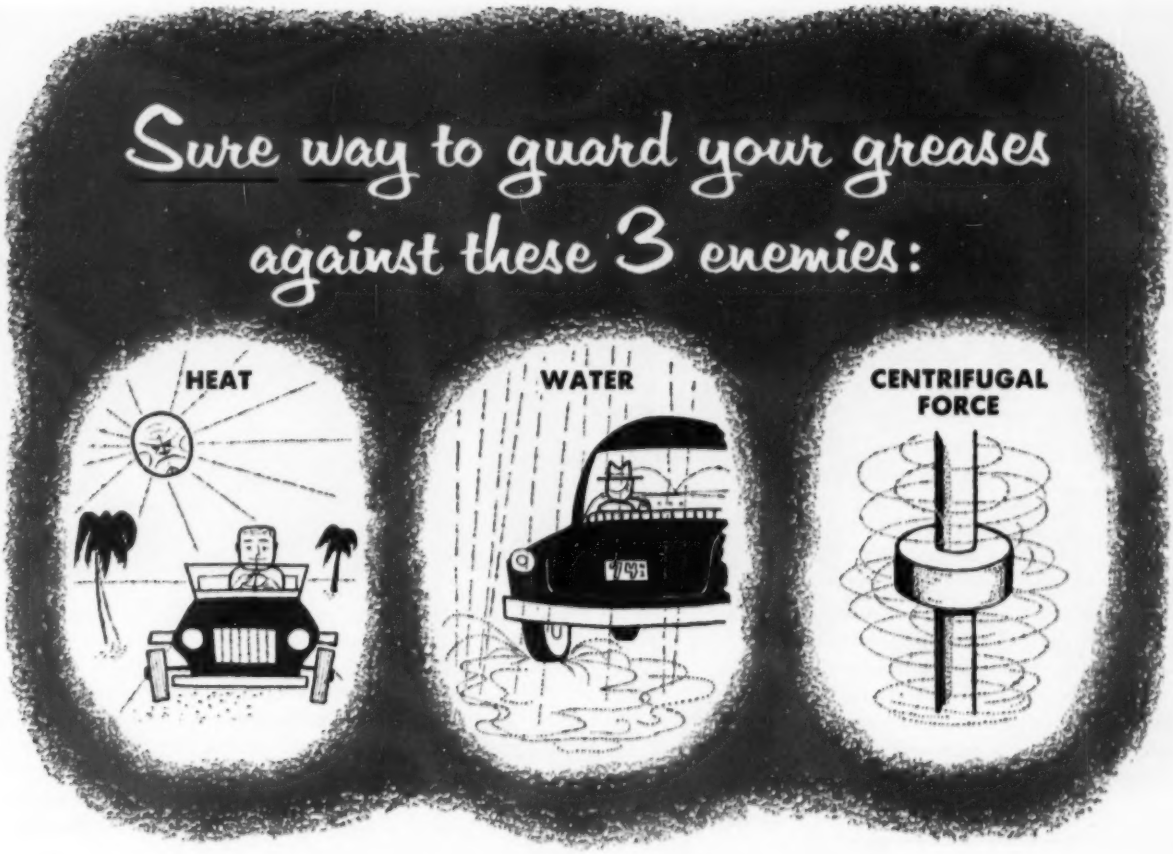

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METASAP® ALUMINUM STEARATE

Metasap Stearates are known the world over as *the cleanest stearates made.*

Also, the Metasap technical staff is notably successful in supplying makers of greases with the exact properties they need for each specific task. There's a Metasap base which gives you a high gel type grease when *that's* what you need; another for a medium heavy gel where smoothness is your chief requisite; still another produces with great economy the semi-fluid, adhesive-type lubricant known as castor machine oil.

Each of these...and many more...and modifications of each to meet your most exacting needs, are at your service, together with the counsel of the most experienced stearate men in America.

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the cleanest stearates made

voter into believing that the word security means the right to live in idleness—at public expense—from the cradle to the grave," he said.

Describing "progressive" as a much-abused word, Mr. Fairless declared there can be no freedom without progress. "If our forefathers had tried to freeze our way of life into the primitive patterns of 1776, the whole glorious story of American independence would today be no more than a tragic paragraph on some forgotten page of history," he said.

"We realize, too, there can be no progress without change," Mr. Fairless pointed out. "But we have also learned from experience that there can often be change without progress—disastrous, crippling change, for the sake of change alone. The real progressive is the man who knows unfailingly which kind of a change is which. He will never permit our freedoms to be swept aside in the search for a shortcut to Utopia; nor does he regard the Constiution as a dam which holds back the tide of our national progress. Rather, he sees in it the stout retaining walls which channel the flow of that tide always in the direction of human liberty."

HARSHAW LEAD BASE

Harshaw Lead Base, as an additive to petroleum lubricants, improves extreme pressure characteristics and imparts the following desirable properties:

- Increased film strength
- Increased lubricity
- Improved wetting of metal surfaces
- A strong bond between lubricant and metal surfaces
- Resistance to welding of metals at high temperatures
- Moisture resistance and inhibits corrosion

Harshaw Lead Bases are offered in three concentrations to suit your particular needs:

Liquid	Liquid	Solid
30% Pb	33% Pb	36% Pb

Other metallic soaps made to your specifications. Our Technical Staffs are available to help you adapt these products to your specific needs.

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RAYMOND J. O'HARA

HAYDEN A. GLATTE

O'Hara Joins Synthetic

Raymond J. O'Hara has joined Synthetic Products Company, of Cleveland, Ohio, as Chief Chemist, Garry B. Curtiss, vice president and general manager, announced.

At the same time, Curtiss revealed the expansion of Synthetic Products' Technical Service Department to serve more effectively the vinyl plastics industry.

Mr. O'Hara has over 10 years experience in development and application of vinyl stabilizers and metal-organo compounds for the plastic, paint and grease industries. Much time has been devoted to development of improved heat and light stabilizers for vinyl plastics.

H. A. Glatte New Inter-State Executive

Hayden A. Glatte has been named Executive Vice President and General Manager of Inter-State Oil Company of Kansas City, Kansas.

A native Missourian, the new Inter-State executive has been associated for the past 15 years with the Flintkote Company, manufacturer of building materials, composition floor tiles and industrial products, with headquarters in New York City. Immediately prior to joining Inter-State, he was General Sales Manager of the Tile-Tex Division of Flintkote at Chicago Heights, Illinois.

With the Flintkote Company, Glatte not only filled a sales management position; but because of his engineering background, he was able to play a key role in products research and development as well. During both World War II and the Korean War, Flintkote sent him to Washington where he worked with government officials in the development of products for use by our armed forces.

At the University of Missouri, Glatte became a close friend of John A. Moore, Jr. and the late Cervantes A. Shepard. At the time of Shepard's death in 1953, he was owner and president of Inter-State. Moore is a member of the Board of Directors of the Corporation.

Through his friendship with these two men, Glatte has kept in close touch with the continuing growth of Inter-State. A producer of specialized lubricants since 1887, Inter-State is the oldest independent oil company west of the Mississippi.

American Petroleum Midyear Meeting

Partial details of the program for the midyear meeting of the Division of Marketing of the American Petroleum Institute, to be held May 23-24-25 at the Chase-Park Plaza Hotels, St. Louis, have been announced by J. G. Jordan, API Vice President for Marketing and Marketing Vice President of Shell Oil Company, New York.

Jordan reported that "workshop" discussions of current oil marketing problems will be featured at the meeting this year, rather than formal addresses by speakers as in the past. He said the discussions will be sponsored by various committees functioning under the Marketing Division.

Thus far, the Fuel Oil Committee and the Operations and Engineering Committee have announced their plans. Details of discussions arranged by the Jobber Advisory, Marketing, Personnel Training, Marketing Research, and the Service Station Advisory Committees will be announced shortly, Jordan stated.

The Fuel Oil Committee will present a panel discussion on "Better Living with Oil Heat" May 24 with M. N. Vining of Diesel Oil Sales Co., Seattle, Wash., and Chairman of the Committee, as moderator. Panel members will include:

1. Robert Gray, Fueloil and Oilheat Magazine, New York, who will discuss the organization being established to make oilheating market reports and coordinate and assist local programs to promote oil heating;

2. William F. Briggs, Valley Oil Company, Middletown, Conn., who will explore "Consumer Attitudes Toward Oilheating and How to Improve Them";

3. D. L. Barrett, Esso Standard Oil Company, New York, who will analyze "Fuel Oil Delivery Methods";

4. Francis J. Schuster, Troy Oil Company, Indianapolis, who will comment on "Fuel Oil Budget Programs and Credit Policies"; and

5. J. A. Collins, Frontier Oil Refining Company, Buffalo, who will analyze "Oil Burner Service Responsibility."

On the same afternoon (May 24) the Operations and Engineering Committee, M. M. Beckes, Socony-Vacuum Oil Company, New York, Chairman, will sponsor papers by:

1. R. A. Niles, Standard Oil Company, (Indiana), Chicago, on "Service Station Lighting";

2. R. W. Hird, Continental Oil Company, Houston, on "Remote Pumping of Gasoline at Service Stations"; and

3. J. A. Winger, The Texas Company, New York, on "Functions and Plans of the Operations and Engineering Committee."

At both sessions, questions and comments from the floor will be encouraged, according to Jordan. He emphasized that all oil marketers, whether or not they are members of the Institute, will be welcome at the Marketing Division's midyear meeting.

Burial Rites for Dr. F. J. Williams

Dr. Francis Jesse Williams, Director, Research and Development Laboratories, Baroid Division, National Lead Company, died March 19, 1955 at Houston, Texas. Dr. Williams was born in Wellsburg, New York, May 15, 1907. He received his B.S. degree from Alfred University in 1928 and his Ph.D. (Ceramic Engineering) from

DR. FRANCIS JESSE WILLIAMS

Ohio State University in 1932. After completing his graduate work he joined the faculty of Pennsyvania State College, later becoming assistant professor prior to his departure in 1935.

Dr. Williams became affiliated with the National Lead Company in 1936 when he became the first incumbent of the National Lead Company Fellowship at Mellon Institute, Pittsburgh, Pennsylvania. In connection with fellowship work which he conducted while at Mellon, he was active in solving technical production problems at National Lead Company plants in the St. Louis area. In 1939 he was transferred to the National Lead Company Research Laboratories at Brooklyn, New York, where he became head af the Research and Development Department. From 1948 to 1950 he served as Technical Director of the research laboratories. During the time Dr. Williams was associated with the Brooklyn Laboratories, he was instrumental in the development of many new products, particularly in the field of lead chemicals, organic lead compounds and pigments. In 1950, he joined the Baroid Division of the National Lead Company as Director of the Research and Development Laboratories, a position in which he served with outstanding ability until his death.

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Color 5¼" Lovibond Yellow	2 —	15
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Saponification Value	202 —	204
Acid Value	201 —	203
Iodine Value (WIJS)	3 max.	

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Forerunners of New "A-D-Miracles" in Fatty Alcohol Development . . .

ADOL 54, predominantly cetyl, is a white, amorphous solid at room temperature, bland and dry. Supplied in N.F. quality if desired. Excellent for absorption bases, lotions, creams, pharmaceuticals and softeners.

ADOL 64, stearyl alcohol of exceptional quality. Used in making lube oil viscosity index improvers, pour point depressants, detergents, color dispersants, finishing agents and defoamers. Can be supplied in U.S.P. quality if desired.

ADOL 33, light colored liquid fatty alcohol, a superior low-cloud product for applications such as surface active agents, germicides, insecticides, shampoos, anti-static agents, softeners, lubricating oils, and many other applications where low cold test is important.

ADOL 65, a commercial grade of mixed cetyl and stearyl alcohol is also available for industrial applications.

These and numerous standard ADOLS, immediately available for shipment in car lots or tank cars from eight strategically located warehouses, are forerunners of advanced alcohols under development for manufacture at ADM, Ashtabula, Ohio.

You can keep abreast of what's coming by asking to have your name added to ADM's select list currently receiving advanced technical information on ADOLS and UNADOLS.

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Hydrogenated and Distilled Fatty Acids and Stearic Acid . . . Hydrogenated Vegetable, Fish, Sperm Oil and Tallow . . . Hydrogenated Castor Oil . . . Stearyl, Cetyl, Oleyl, Alcohol . . . Sperm Oils and Spermaceti . . . Behenic Acid . . . Erucic Acid . . . Hydroxystearic Acid.

ARCHER • DANIELS • MIDLAND COMPANY
Chemical Products Division • 2191 West 110th St. • Cleveland 2, Ohio

Lincoln Engineering's Multi-Luber Toasted on Toast of the Town

It was Sunday evening, April 24, and Ed Sullivan's TV show, "Toast of the Town," was progressing as usual, when an unusual note was added. He talked about lubrication—and grease lubrication at that. His audience took it in stride, but it must have been electrifying news to the lubricating grease people accustomed to seldom hearing their industry product mentioned to such a large audience.

He told his audience about the new Multi-Luber optional with Lincoln and Mercury cars this year. His demonstration was apt and description of how it operated right on the button. What he didn't say was why the equipment both preserved the car and added to the owner's riding comfort and enjoyment. The audience was left wondering whether this is a new gadget with an intriguing push button, or a necessary piece of mechanism that will be standard equipment with all makes of cars in the future.

Produced by Lincoln Engineering Company, it's no gadget and is also available for trucks, trailers, buses, farm machinery and industrial equipment. To those versed in the necessity of proper lubrication, particularly automotive, it means cleaner lubrication points on the chassis, suspension and steering systems.

A finger tip control button on the instrument panel of both Lincoln and Mercury operates an injector pump located in the engine compartment from which tubular insulated nylon feed lines extend to the various lubrication points. They terminate in a specially designed coupling that locks securely over the regular grease fittings.

By pressing the power lubrication button every 50 miles, or once a day the car is always thoroughly and properly lubricated with refinery pure grease. It can be operated 200 times, or for an estimated 10,000 miles, before it is necessary to replace the 7 ounce disposable can of lubricant supplying the system.

Necessity for prompt and adequate lubrication was clearly brought out during the last NLGI Annual Meeting in San Francisco where a panel

Continued on page 33

Industry NEWS

Kerr-McGee Industries Purchase Deep Rock Oil Corporation

Kerr-McGee Oil Industries, Inc., Oklahoma City, will take over the refining, marketing, and pipeline activities of Deep Rock Oil Corporation, Tulsa, it was announced recently by Dean A. McGee, Kerr-McGee president, and W. H. Garbade, Deep Rock president.

For a consideration of $17,000,000 of cumulative, 4½%, convertible, preferred stock, plus a substantial oil payment from its undeveloped leases, Deep Rock will transfer to Kerr-McGee $5,000,000 cash and $12,000,000 in assets including trade name, certain undeveloped leases, accounts and notes receivable, materials, supplies and equipment.

The transaction has been approved by the boards of directors of both companies. It was effective April 1, 1955.

President McGee said that the marketing facilities included in the deal will materially strengthen the company's position, and that the transaction will increase Kerr-McGee's capital funds at a time when the opportunities available to it for possible investment are greater than ever. The Deep Rock activities involved will hereafter be operated as a division of Kerr-McGee and no major personnel changes are expected. The division will be located in Deep Rock's present Tulsa quarters. Deep Rock employees will retain seniority rights and the equivalent of present benefits.

Under the terms of the agreement announced today, Deep Rock sold most of its undeveloped leases, but retained a production payment in the amount of $3,000,000 payable out of 5% of gross income from those leases. The old Deep Rock organization will operate as an oil and gas producing, royalty, engineering, and investment company under a new name to be announced, according to president Garbade. The company will continue to headquarter in Tulsa and will retain from the present organization the personnel needed to carry on and expand these activities.

D. A. McGee (left), president, Kerr-McGee and Carl A. Houy, vice-president, Deep Rock during final signing ceremonies April 27 in Tulsa closing $17,000,000 sale of Deep Rock.

Deep Rock has daily production of 1,200 barrels of crude oil and is in the midst of an active development drilling program. The company's wholly-owned subsidiary, Hugoton Plains Gas and Oil Co., has an average daily production of 65,000,000 cubic feet of gas and 40,000 gallons of liquid products. Deep Rock will also retain its interest in the Many Islands gas field, Alberta, Canada, and its interest in 5,200,000 undeveloped Cuban acres.

The stock which Deep Rock has acquired amounts to approximately 680,000 shares of 4½% dividend, $25 par value, cumulative, convertible, preferred stock. This Kerr-McGee preferred issue will be convertible into their common for the first three years at the rate of $60 a share, and cannot be called during the first three years.

Following the acquisition and registration of the Kerr-McGee convertible preferred shares, Deep Rock proposes to offer 450,000 of these shares to its stockholders on the basis of 3 shares of Kerr-McGee preferred for each share of Deep Rock common. This exchange offer will permit 150,000 shares of Deep Rock common to be exchanged for Kerr-McGee preferred shares. If, however, more than 150,000 shares of Deep Rock common are tendered for exchange into Kerr-McGee preferred shares, they will be prorated over the total number of Deep Rock shares tendered.

Today's announcement marked Kerr-McGee's initial entry into the branded marketing of petroleum products. Under Deep Rock acquisition it will have hundreds of service station outlets and bulk plants in 14 states throughout the Middlewest. The requirements of this distributing organization will be supplied from Kerr-McGee's modernized Wynnewood, Okla. refinery and the acquired Deep Rock refinery at Cushing, Oklahoma. Last July Deep Rock sold most of its producing properties and its Cushing refinery to the General American Oil Company of Texas, but it retained a cancellable lease on the refinery. In the move announced today this lease has been transferred to Kerr-McGee with the approval of General American Oil Company.

The sale of products by the company will be headed by two former Deep Rock vice presidents and a Kerr-McGee vice president. J. J. Kelly, vice president, marketing, Kerr-McGee, will handle the sale of heavy products. W. M. Murray, former Deep Rock vice president, direct sales, will be in charge of bulk sales to compounders, refiners, marketers and manufacturers in both domestic and foreign markets. J. G. Campbell, former Deep Rock vice president, marketing, will head the distribution of branded products from the Wynnewood and Cushing refineries.

No operating or personnel changes are anticipated for the Cushing refinery, McGee says.

Multi-Luber Toasted

Continued from page 32

discussing lubrication for fleets and cars made it completely plain that riding comfort declined soon after lubrication. In many cases much sooner than the average driver realized. NLGI President, H. L. Hemmingway, also mentioned the same subject in an editorial "Lubricate for Safety and Comfort Every 1,000 Miles," which

Continued on page 35

Experimental grease-making machines
Cam-activated sequence controls
for grease-cooling chambers
Grease worker and penetrometers
Dropping point tests

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which has solved many complex problems related to the application of stearates in large-scale commercial operations.

Many grease manufacturers have found Mallinckrodt technical service of great value. An example:

GREASE-MAKER'S REQUEST	MALLINCKRODT'S ACTION
Submitted three oil samples and requested recommendations for choice and concentration of stearate to produce the best greases for auto chassis lubrication.	(1) More than 40 grease samples were made and tested. (2) Detailed report submitted to grease-maker. (3) Grease samples illustrating most important findings were submitted. (4) Samples of recommended stearates were sent.

RESULT: The best oil and the best stearates for that oil were found. Problems solved, the grease-maker was free to apply his technical know-how and experience to the job of manufacturing the best possible grease.

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Manufacturers of Medicinal, Photographic, Analytical and Industrial Fine Chemicals

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1955 Guide to Approved Lubrication

The 1955 Guide to Approved Lubrication for Passenger Cars and Light Trucks has just been published by The Chek-Chart Corporation, Chicago. To begin its second quarter century of providing the most and best car servicing information to the petroleum and automotive industries, Chek-Chart has produced the best Lubrication Guide that the world's foremost engineers could conceive and design.

Every conceivable problem of lubrication and servicing has been anticipated and solved—the 1955 Guide contains the solutions. For example, with wage rates going higher and higher, time has become a most valuable commodity. The 1955 Lubrication Guide shows how more time can be saved on each job, without sacrificing an ounce of thoroughness, or endangering the degree of customer satisfaction.

If automatic transmission service, multi-viscosity oils, or power-operated accessories worry you—forget it. The 1955 Lubrication Guide erases potential trouble by showing you where to service, how to service, when to service, and with what grade and type of lubricant to service.

Between attractive, spiral-bound covers, this Guide has 152 pages of the most complete, authoritative automotive servicing information to be found anywhere. And it doesn't stop at late model passenger cars. There is coverage on older models too, brought up to date including any changes manufacturers have made in their recommendations. All popular models of light trucks are represented by lubrication diagrams, recommendations and capacities.

For additional information and prices, contact The Chek-Chart Corporation, 33 East Congress Parkway, Chicago 5, Illinois.

Multi-Luber Toasted

Continued from page 33

appeared in the March issue of the *Spokesman*.

Lincoln Engineering has an answer to the problem. For more information you can write Lincoln Engineering, Industrial Division, 5701 Natural Bridge Avenue, St. Louis 20, Missouri.

The Valvoline Oil Co., Division of Ashland Oil & Refining Co., Freedom, Pa., announces their newest traveling advertising display is now available to their distributors and dealers for sales promotion purposes.

The convenient display is ideal for use in convention rooms, sales meetings and business shows, as well as in automobile dealers show rooms.

The sturdy display is shipped completely knocked down for easy handling, yet can be completely assembled by one man in very little time. Convenient spaces are profided for the newest Valvoline advertising material.

For complete information, write Valvoline Oil Co., Dept. VA, Freedom, Pa.

P. W. Wood Co. Represents Baker

The Baker Castor Oil Company has announced the appointment of the Paul W. Wood Company, as executive sales representative for the San Francisco Bay Area. This well known firm will handle sales and service for the paint, plastics, lubrication, rubber and chemical industries.

The Paul W. Wood Company is ably staffed with personnel, well suited to provide prompt and efficient service.

All Baker products will be warehoused by the Paul W. Wood Company in San Francisco. Similar stocks, for the convenience of east bay customers, will be held at Howard Terminal in Oakland.

The appointment was effective April 1, 1955.

FISKE BROTHERS REFINING CO.

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The improved high quality and excellent performance characteristics of Hyfacs 442 12-Hydroxystearic Acid and 2142 Hydrogenated Castor Oil is maintained at uniform peaks by strict quality control. The combined efforts of research, development and control assure highest uniform quality—every time you order from Emery!

convenience and economy

Details of sales and service are given careful attention by Emery's 19 direct sales representatives located throughout the United States. Branch offices and additional warehouse points, coast to coast, are your assurance of quick service and fast shipments.

Also, savings can be realized by combining less than carload lots of 12-hydroxystearic acid or hydrogenated castor oil with your other requirements of animal, vegetable or hydrogenated fatty acids, stearic and oleic acids.

Write Dept. E today for Emerytechs bulletin on Hyfacs 12-Hydroxystearic Acid and Hydrogenated Castor Oil.

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FUTURE MEETINGS of the Industry

MAY, 1955

14-22 World Wide Chemical Plant and Equipment Exposition and Congress, Frankfurt, Germany

15-17 Pennsylvania Petroleum Association (Spring convention), Bedford Springs Hotel, Bedford, Pa.

15-20 National Tank Truck Carriers, Inc. (annual convention), Mark Hopkins Hotel, San Francisco, Calif.

16-18 American Petroleum Institute (Division of Marketing, Lubrication Committee), The Greenbrier, White Sulphur Springs, W. Va.

16-18 American Petroleum Institute (Division of Transportation, Products Pipe Line Conference), Edgewater Beach Hotel, Chicago, Ill.

16-20 National Fire Protection Assn., Netherlands Plaza Hotel, Cincinnati, Ohio

19-20 National Industrial Conference Board, Waldorf-Astoria Hotel, New York, N. Y.

23-25 American Petroleum Institute (Division of Marketing midyear meeting), Chase & Park Plaza Hotels, St. Louis, Mo.

26-27 AIME (Rocky Mt. Petroleum Sections joint meeting), Shirley Savoy Hotel, Denver, Colo.

26-27 Kentucky Oil & Gas Assn. (annual meeting), Lafayette Hotel, Lexington, Ky.

30 to June 1 Chemical Institute of Canada (38th annual conference and exhibition), Quebec City, Can.

JUNE, 1955

1-2 San Francisco Bay Area Industry Conference, Claremont Hotel, Berkeley, Calif.

6-10 American Petroleum Institute (Division of Production midyear committee conference), Brown Palace Hotel, Denver, Colo.

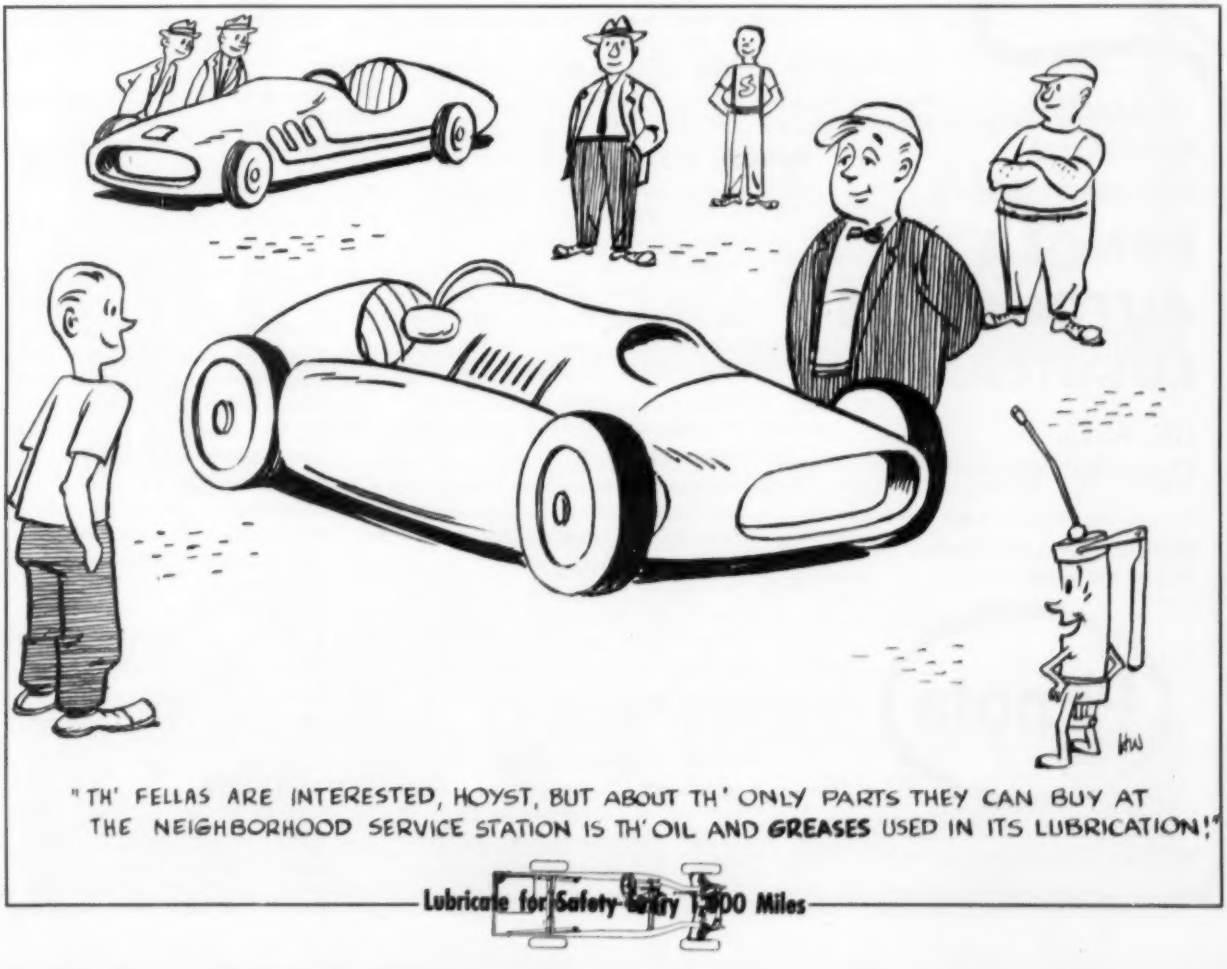
6-15 Fourth World Petroleum Congress, Rome, Italy

7-8 Petroleum Packaging Committee of the Packaging Institute, Broadview Hotel, Wichita, Kansas

7-9 National Oil Scouts & Landmen's Assn. (32nd annual convention), Banff Springs Hotel, Banff, Canada

8-9 American Petroleum Institute (OIIC meeting), Wm. Penn Hotel, Pittsburgh, Pa.

9-10 Pennsylvania Grade Crude Oil Association (annual meeting), Wm. Penn Hotel, Pittsburgh, Pa.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GREASES
CUTTING OILS

are laboratory engineered,
quality-controlled and tested
for your protection.

Penola

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15 West 51st Street, New York 19, N.Y.

11-15 Petroleum Equipment Suppliers Assn. (annual meeting), Banff Springs Hotel, Banff, Canada

12-15 American Society of Agricultural Engrs. Illini Union (annual meeting), University of Illinois, Urbana, Ill.

12-17 SAE Golden Anniversary (Summer meeting), Chalfonte Haddon Hall, Atlantic City, N. J.

19-21 Northwest Petroleum Association (Summer conference), Point Lodge, Pequot Lakes, Minn.

20-23 American Society of Mechanical Engineers (semiannual meeting), Statler Hotel, Boston, Mass.

26 to July 1 ASTM Committee D-2, Petroleum Products and Lubricants, Chalfonte Haddon Hall, Atlantic City, N. J.

27 to July 1 American Institute of Electrical Engineers (Summer Meeting), New Ocean House, Swampscott, Mass.

JULY, 1955

19-21 American Petroleum Institute (Committee on Agriculture annual business meeting and field trip), Oregon State College, Corvallis, Ore.

AUGUST, 1955

15 American Petroleum Institute (OIIC Steering Committee meeting), Traymore Hotel, Atlantic City, N. J.

15-17 Society of Automotive Engineers (West Coast meeting), Hotel Multnomah, Portland, Ore.

15-19 American Institute of Electrical Engineers (Pacific general meeting), Butte, Mont.

21-26 National Congress of Petroleum Retailers, Inc. (9th Annual Session), Sheraton-Cadillac Hotel, Detroit, Mich.

30-31 Petroleum Packaging Committee of the Packaging Institute, Royal York and King Edward Hotels, Toronto, Canada

SEPTEMBER, 1955

8-9 American Petroleum Institute (OIIC meeting), Conrad Hilton Hotel, Chicago, Ill.

12-15 Society of Automotive Engineers (tractor meeting), Hotel Schroeder, Milwaukee, Wis.

13-15 National Petroleum Association, Atlantic City, N. J.

14-16 National Petroleum Association (53rd annual meeting), Traymore Hotel, Atlantic City, N. J.

22-23 Mid-Continent Oil & Gas Assn. (La.-Ark. Division annual membership meeting), Roosevelt Hotel, New Orleans, La.

26-27 Independent Oil Compounders Assn. (annual meeting), Hotel Bismarck, Chicago, Ill.

25-28 American Institute of Chemical Engineers, Lake Placid Club, Lake Placid, N. Y.

27-28 Ohio Petroleum Marketers Association Fall Conference and Golf Tournament, Netherland Plaza Hotel and Maketewah Country Club, Cincinnati, Ohio

OCTOBER, 1955

2-5 AIME Petroleum Branch (Fall meeting), Roosevelt Hotel, New Orleans, La.

2-6 ASTM Committee D-2, Petroleum Products and Lubricants, Statler Hotel, Washington, D. C.

3-7 American Institute of Electrical Engineers (Fall general meeting), Morrison Hotel, Chicago, Ill.

9-15 American Petroleum Institute Oil Progress Week

11-15 Society of Automotive Engineers, Hotel Statler, Los Angeles, Calif.

12-13 South Dakota Independent Oil Men's Assn., Mitchell, S. D.

18-22 National Safety Council (43rd National Safety Congress and Exposition), Chicago, Ill.

24-26 American Standards Assn. (annual meeting), Sheraton Park Hotel, Washington, D. C.

27-29 Rocky Mountain Oil & Gas Assn. (annual convention), Cosmopolitan Hotel, Denver, Colo.

31 to Nov. 1 Independent Petroleum Assn. of America (annual membership meeting), Jefferson Hotel, St. Louis, Mo.

31 to Nov. 2 NLGI ANNUAL MEETING, EDGEWATER BEACH HOTEL, CHICAGO, ILL.

31 to Nov. 2 Society of Automotive Engineers (transportation meeting), Chase Hotel, St. Louis, Mo.

NOVEMBER, 1955

2-4 Society of Automotive Engineers (diesel engine meeting), Chase Hotel, St. Louis, Mo.

More sales opportunity with Multi-purpose

Bentone* 34

THE EASY-TO-MAKE GREASE WITH A THOUSAND USES

Grease manufacturers all over the nation are creating new sales opportunities by making grease with Bentone* 34. Bentone grease provides excellent lubricating characteristics without many of the usual problems caused by heat, water, phase separation, and change of temperature. Recorded job-tests using Bentone grease have shown savings of thousands of dollars in grease costs and eliminated hundreds of maintenance hours.

Here's why grease manufacturers like Bentone 34:

1 LESS EQUIPMENT NEEDED

You need only a mixing tank and colloid mill or homogenizer to make Bentone greases.

2 PRODUCTION IS EASY

Compounding this remarkable grease consists of simple mixing of the oil and the Bentone, followed by milling or homogenizing.

3 ALWAYS UNIFORM HIGH QUALITY

Bentone grease is always the same, uniform and consistent — year after year, batch after batch — because the unique Bentone structure is permanently formed at time of manufacture.

4 OFFERS COMPETITIVE SALES ADVANTAGES

The demand for Bentone grease is soaring and it's profitable to offer it to *your* customers. Grease made with Bentone 34 has hundreds of applications, so now you can sell one grease for scores of uses. You can also cut your costs by eliminating needless duplication in your line.

Here's why lubrication engineers like Bentone grease:

A. **Temperature resistant** — grease made with Bentone 34 will not melt under high temperatures which affect many other greases. It retains pumpability at extremely low temperatures.

B. **Low bleeding characteristics** — tendency to bleed is considerably less for Bentone grease than for ordinary grease of equivalent consistency.

C. **Excellent wear properties** — repeated tests prove that Bentone greases have exceptionally good wear characteristics.

D. **Remarkable adhesion properties** — adhesion of Bentone 34 greases to moving metal surfaces is one of their best properties, greatly surpasses conventional greases.

5020

Dutch Boy

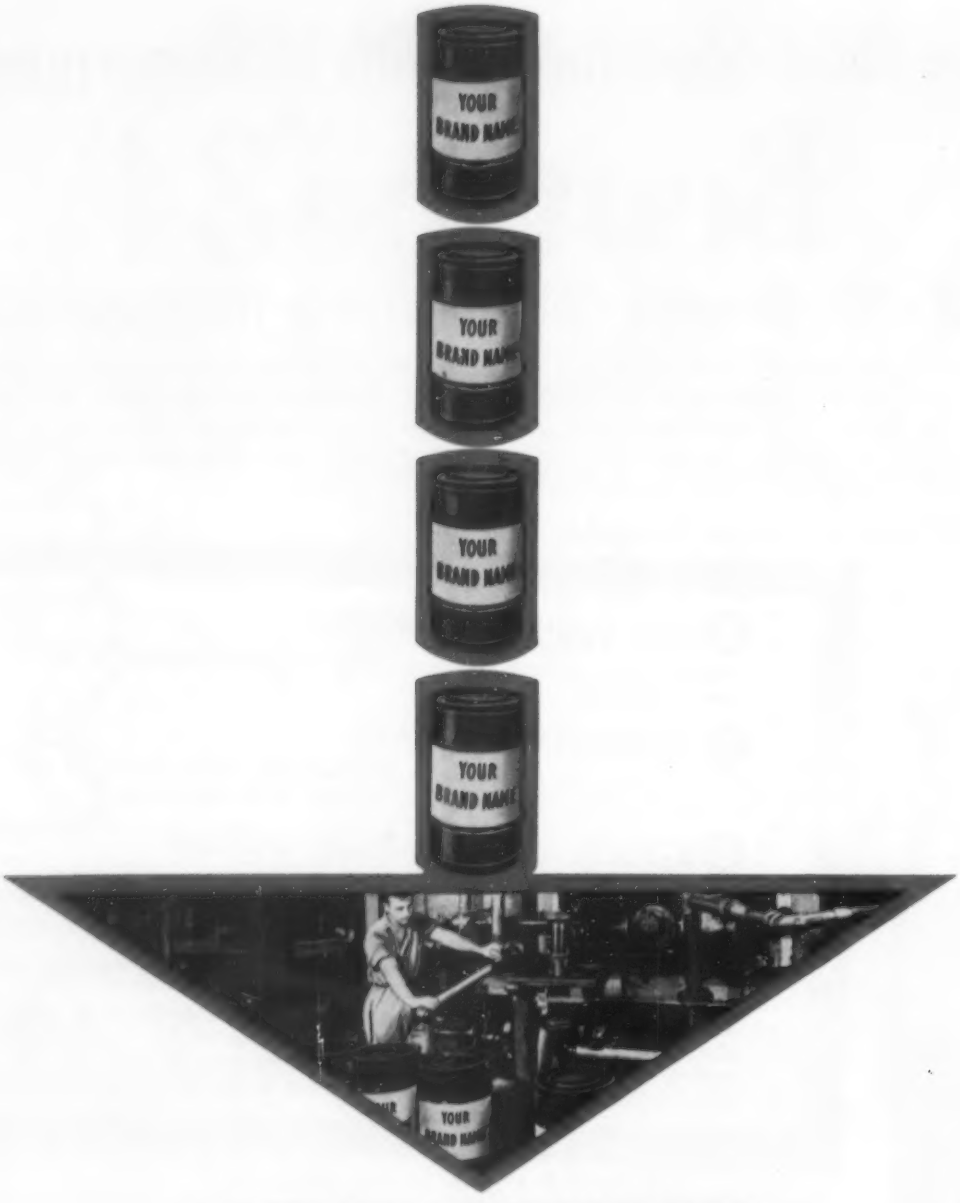
® TRADEMARKS REGISTERED U. S. PAT. OFF.

BENTONE* 34

THE NON-SOAP GELLING AGENT

NATIONAL LEAD COMPANY ★ BAROID DIVISION

P. O. BOX 1675, HOUSTON 1, TEXAS



GREASE MARKETERS...

multi-purpose grease under your brand name

More and more major oil companies, farm co-operatives, fleet owners and industrial users from coast to coast are finding that they profit from the use of International's dependable lithium-base, multi-purpose grease.

Its high water tolerance, broad temperature range and high pumpability, low rate of oxidation and excellent storage stability are unique advantages that build customer satisfaction. Let us send you a sample.

INTERNATIONAL LUBRICANT CORP.
NEW ORLEANS, LA.

With Research Comes Quality, INTERNATIONAL LUBRICATION *With Quality Comes Leadership*

9-10 Society of Automotive Engineers (fuels and lubricants meeting), Bellevue-Stratford Hotel, Philadelphia, Pa.

13-18 American Society of Mechanical Engineers (75th anniversary meeting), Hilton & Blackstone Hotels, Chicago, Ill.

14-17 American Petroleum Institute (35th annual meeting), Mark Hopkins, Fairmont, St. Francis, and Palace Hotels, San Francisco, Calif.

16 American Petroleum Institute (OIIC Steering Committee meeting), San Francisco, Calif.

17 National Industrial Conference Board (general session), Bellevue-Stratford Hotel, Philadelphia, Pa.

27-30 American Institute of Chemical Engineers (annual meeting), Statler Hotel, Detroit, Mich.

DECEMBER, 1955

6-7 Petroleum Packaging Committee of Packaging Institute, Benjamin Franklin Hotel, Philadelphia, Pa.

8-9 American Petroleum Institute (OIIC meeting), Waldorf-Astoria Hotel, New York, N. Y.

11-14 American Society of Agricultural Engineers (Winter meeting), Edgewater Beach Hotel, Chicago, Ill.

JANUARY, 1956

9-13 SAE Annual Meeting, Sheraton-Cadillac Hotel and Hotel Statler, Detroit, Mich.

APRIL, 1956

18-20 National Petroleum Association, Cleveland, Ohio

JUNE, 1956

3-8 SAE Summer meeting, Chalfonte-Haddon Hall, Atlantic City, N. J.

SEPTEMBER, 1956

12-14 National Petroleum Association, Atlantic City, N. J.

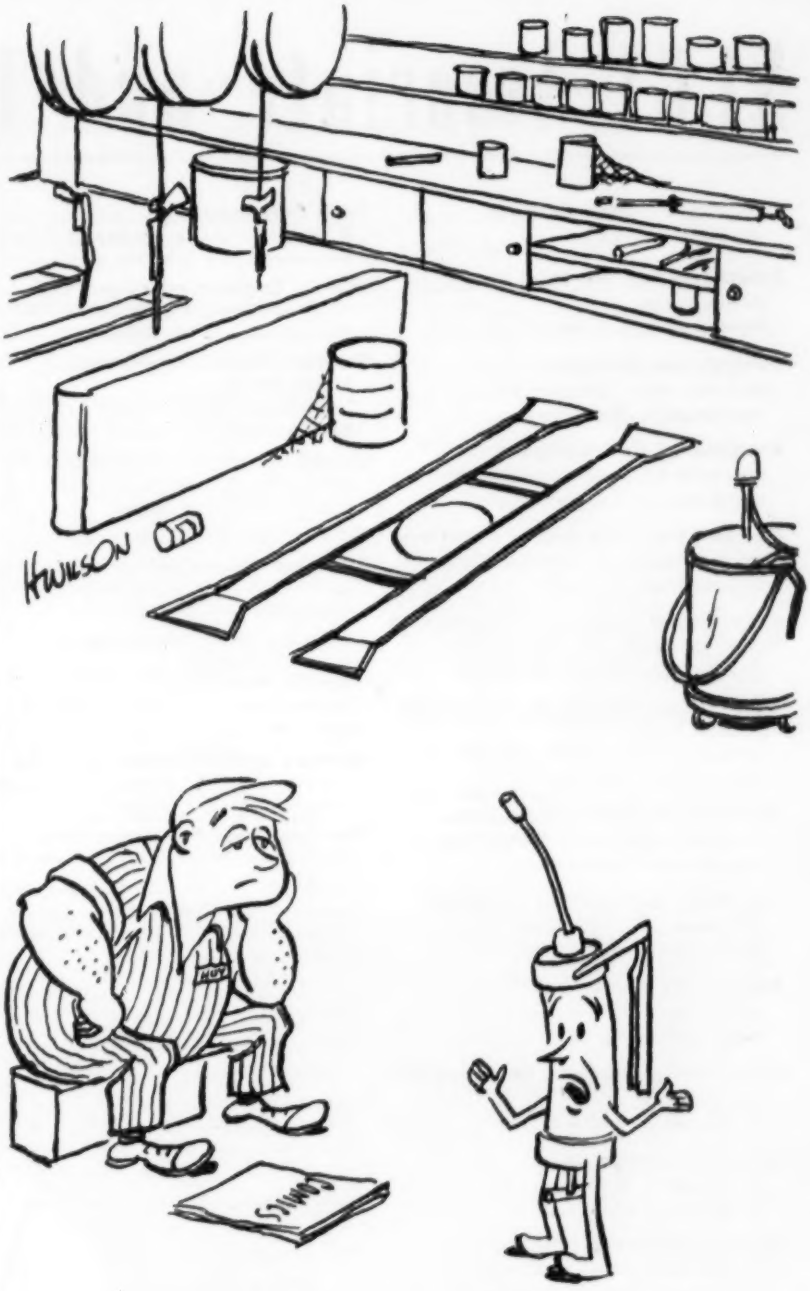
NOVEMBER, 1956

1-2 SAE National Diesel Engine Meeting, Drake Hotel, Chicago, Ill.

8-9 SAE National Fuels and Lubricants Meeting, The Mayo, Tulsa, Okla.

APRIL, 1957

16-18 National Petroleum Association, Cleveland, Ohio



"---WONDER IF HOYST KNOWS THAT THE STUFF HE HAS IN THIS STATION IS THE SAME USED IN THE INDIANAPOLIS RACES?"

SEPTEMBER, 1957

11-13 National Petroleum Association, Atlantic City, N. J.

APRIL, 1958

16-18 National Petroleum Association, Cleveland, Ohio

SEPTEMBER, 1958

10-12 National Petroleum Association, Atlantic City, N. J.

NLGI Associate and Technical Me

CONTAINER AND CLOSURE MANUFACTURERS

Bennett Industries, Inc.
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Representative—S. A. Bennett

Central Can Company
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Representative—Henry Frazin

Continental Can Company, Inc.
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Representative—T. A. Graham

Geuder, Paeschke & Frey Company
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Representative—Neil Savee

Inland Steel Container Company
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Representative—Robert J. Greenebaum

Jones & Laughlin Steel Corporation
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Representative—Jerry Lyons

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Representative—Henry Rudy

The Ohio Corrugating Company
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Representative—Lawrence F. McKay

Rheem Manufacturing Company
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Representative—F. J. Blume

Rieke Metal Products Corporation
Auburn, Indiana
Representative—Mahlon E. Rieke

Trilla Cooperage, Inc.
2524 Blue Island Ave., Chicago 8, Ill.
Representative—Lester Trilla

United States Steel Products
Division, United States Steel Company
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Representative—Wm. I. Hanrahan

Vulcan Stamping & Mfg. Co.
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Representative—H. B. Scharbach

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Disney near Marburg, Cincinnati 9, Ohio
Representative—Richard P. Field

Gray Company, Inc.
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Representative—B. A. Beaver

Lincoln Engineering Company
5701 Natural Bridge Ave., St. Louis 20, Mo.
Representative—G. A. Hubbard

Stewart-Warner Corporation
Alemite Division
1826 Diversey Parkway, Chicago 14, Illinois
Representative—D. C. Peterson

United States Air Compressor Co.
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Representative—C. A. Bening

MARKETING ORGANIZATIONS

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551 Fifth Ave., New York 17, New York
Representative—Hal U. Fisher

Canadian Petrofina Limited
1015 Beaver Hall Hill
Montreal, Quebec, Canada
Representative—M. E. Wight

REFINERS

Farmers Union Central Exch., Inc.
P. O. Box G, St. Paul 1, Minnesota
Representative—H. F. Wagner

Mid-Continent Petroleum Corp.
Mid-Continent Bldg., P. O. Box 381, Tulsa, Okla.
Representative—J. W. Basore

Valvoline Oil Company
Division of Ashland Oil & Refining Co. Box G
Freedom, Pennsylvania
Representative—D. A. Smith

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Representative—Edward V. Hegg

Chemicolloid Laboratories, Inc.
30 Church St., New York 7, New York
Representative—David F. O'Keefe

The Girdler Company
A Div. of National Cylinder Gas Co. Box 987
Louisville 1, Kentucky
Representative—J. E. Slaughter, Jr.

Manton-Gaulin Mfg. Co., Inc.
44 Garden Street
Everett 49, Massachusetts
Representative—G. W. Eldridge

Morehouse Industries
707 Henry Grady Building, Atlanta 3, Georgia
Representative—George E. Missbach

The C. W. Nofsinger Company
906 Grand Ave., Kansas City 6, Missouri
Representative—C. W. Nofsinger

Stratford Engineering Corporation
1414 Dierks Bldg., Kansas City 6, Missouri
Representative—D. H. Putney

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American Cyanamid Company
30 Rockefeller Plaza
New York 20, New York
Representative—R. B. Wainright

Archer-Daniels-Midland Company
Chemical Products Division, 2191 W. 110th St.
Cleveland 2, Ohio
Representative—Frank C. Haas

Armour & Co., Chemical Division
1355 West 31st St., Chicago 9, Illinois
Representative—H. F. Whitler

The Baker Castor Oil Company
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Representative—H. H. Fritts

Darling & Company
4201 South Ashland Ave., Chicago 9, Illinois
Representative—G. W. Trainor

E. I. du Pont de Nemours & Co.
Wilmington, Delaware
Representative—John R. Sabina

The Elco Lubricant Corporation
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Cleveland 9, Ohio
Representative—Frank X. Sieloff

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4300 Carew Tower, Cincinnati 8, Ohio
Representative—R. F. Brown

Enjay Company, Inc.
15 West 51st St., New York 19, New York
Representative—Sidney W. Fay

Foote Mineral Company
18 W. Chelten Ave., Philadelphia 44, Penn.
Representative—W. F. Luckenbach

General Mills, Inc.
Chemical Division, 400 Second Ave. South
Minneapolis 1, Minnesota
Representative—Abner C. Hopkins, Jr.

A. Gross and Company
295 Madison Avenue, New York 17, N. Y.
Representative—Eugene W. Adams

Harchem Division
Wallace & Tiernan, Inc.
P. O. Drawer 110, Dover, Ohio
Representative—W. G. McLeod

Harshaw Chemical Company
1945 East 97th Street, Cleveland 6, Ohio
Representative—W. J. Straka

Leffingwell Chemical Company
P. O. Box 191, Whittier, California
Representative—D. E. Murphy

Lithium Corporation of America, Inc.
Rand Tower, Minneapolis 2, Minnesota
Representative—Walter M. Fenton

ers... *Supporting Your Organization These Suppliers to this Industry and Marketers of its Products Hold Membership in NLGI*

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Representative—John H. Baird

Mallinckrodt Chemical Works
2nd & Mallinckrodt Sts., St. Louis 7, Missouri
Representative—C. E. Cosby

N. I. Malmstrom & Company
147 Lombardy St., Brooklyn 22, New York
Representative—Ivar Wm. Malmstrom

The McGean Chemical Company
Micland Building, 101 Prospect Ave.
Cleveland 15, Ohio

Metasap Chemical Corporation
Harrison, New Jersey
Representative—O. E. Lohrke

Minerals & Chemicals Corporation of America
210 W. Washington Sq., Philadelphia 5, Penn.
Representative—R. H. Hubbell, Jr.

Monsanto Chemical Company
1700 Second Street, St. Louis 4, Missouri
Representative—J. W. Newcombe

National Lead Company
Baroid Sales Div., 111 Broadway, N. Y. 5, N. Y.
Representative—H. H. Farnham

National Rosin Oil Products, Inc.
1270 Ave. of the Americas, N. Y. City 20, N. Y.
Representative—Richard Bender

Newridge Chemical Company
7025 West 66th Place, Chicago 38, Illinois
Representative—T. E. Shine

M. W. Parsons—Plymouth, Inc.
59 Beekman St., New York City 38, New York
Representative—Herbert Bye

Synthetic Products Company
1636 Wayside Rd., Cleveland 12, Ohio
Representative—Garry B. Curtiss

Swift & Company
165th & Indianapolis Blvd., Hammond, Ind.
Representative—F. H. Beneker

Vegetable Oil Products Co., Inc.
Vopcolene Division
5568 East 61st Street, Los Angeles 22, Calif.
Representative—C. F. Williams

Witco Chemical Company
75 East Wacker Drive, Chicago 1, Illinois
Representative—E. F. Wagner

TECHNICAL AND RESEARCH ORGANIZATIONS

Institut Francais du Petrole
CMrR—Courtel, 4 Place Bir Hackeim
Rueil—Malmaison (S. et Oise) France

Les Laboratoires de Recherches Purfina
31 rue de la Loi, Bruxelles, Belgium
Representative—R. Gillerot

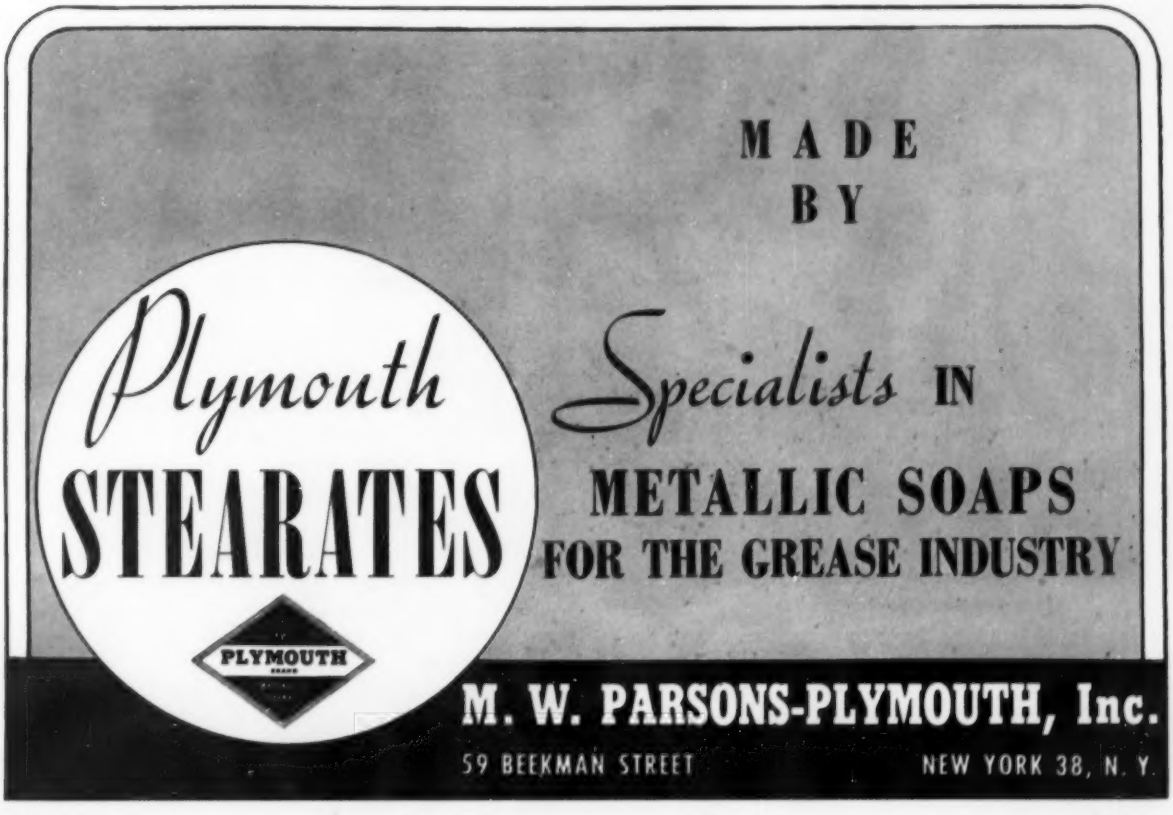
Midwest Research Institute
4049 Pennsylvania, Kansas City 2, Missouri
Representative—Dr. M. H. Thornton

Petroleum Educational Institute
9020 Melrose Avenue, Los Angeles 46, Calif.
Representative—G. A. Zamboni

Phoenix Chemical Laboratory, Inc.
3953 W. Shakespeare Ave., Chicago 47, Ill.
Representative—Mrs. G. A. Krawetz

Products Development Laboratory
1 Market St.
West Warwick, Rhode Island

Sociedad Nacional de Petroleos
Rua D. Pedro V, no. 80, Lisbon, Portugal
Representative—Manuel Corda Boullosa



STRATCO

Reg. U. S. Pat. Off.

INTERNAL CIRCULATION, DOUBLE STIRRER KETTLE

A More Efficient Grease Maker

Due to exceptionally good heating, mixing, kneading, cooling, and more rapid turnover, noticeable economy can be expected from the Stratco double stirrer kettle.

Rapid and uniform completion of the grease batch is accomplished by two counter rotative independently driven assemblies, each with multiple axial flow type impeller blades. (See illustration)

The outer rotative assembly carries blades for completely scraping the interior wall of the machine bored vessel. Heating jacket on the outer shell for any heating medium.

A prime factor, along with the Stratco soap contactor, in the efficiency and economy of complete Stratco installations. Ideal for expansion in existing grease plants.

STRATFORD ENGINEERING Corporation

Dierks Bldg. *PETROLEUM REFINING ENGINEERS* Kansas City 6, Mo.